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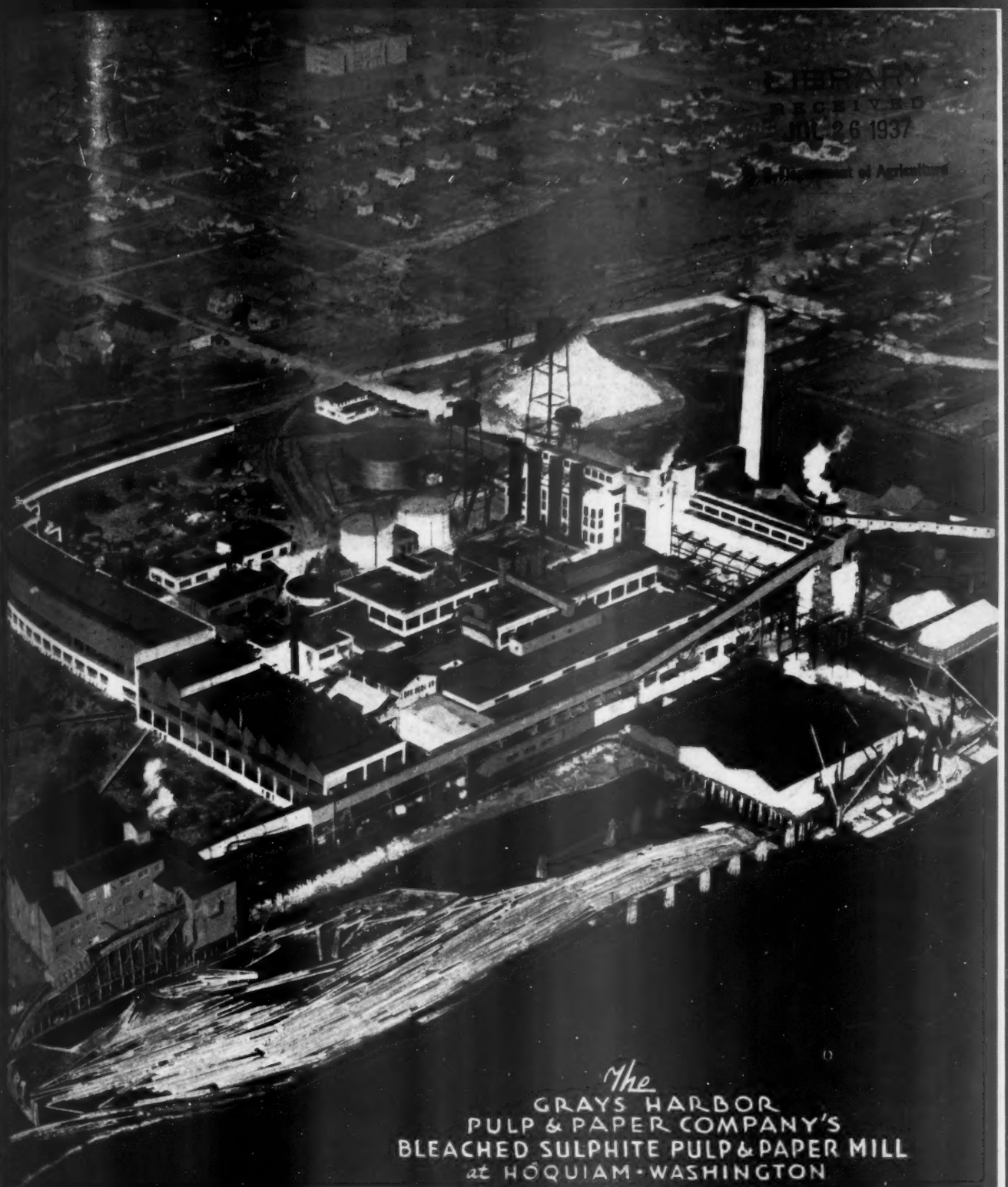

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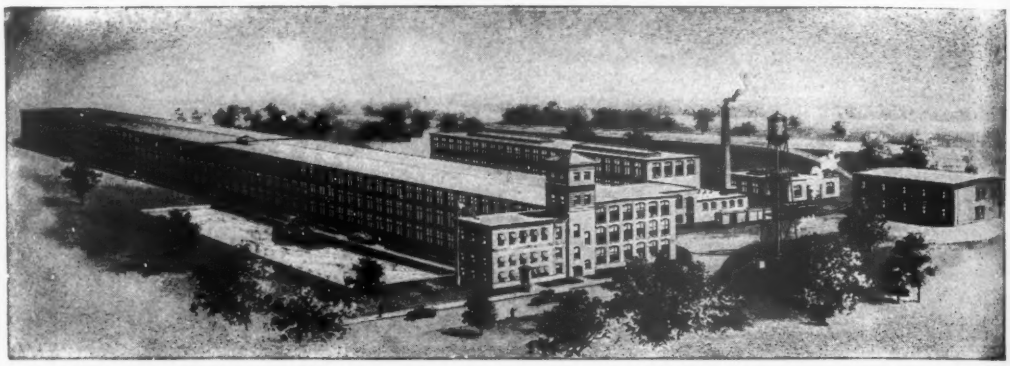
Pacific PULP & PAPER Industry

JULY · 1937



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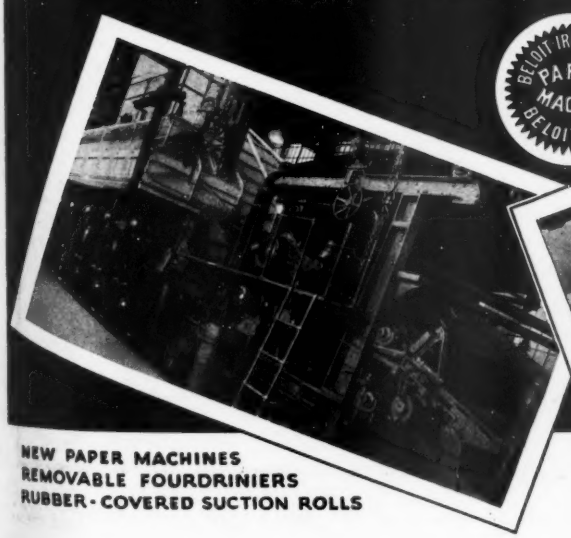

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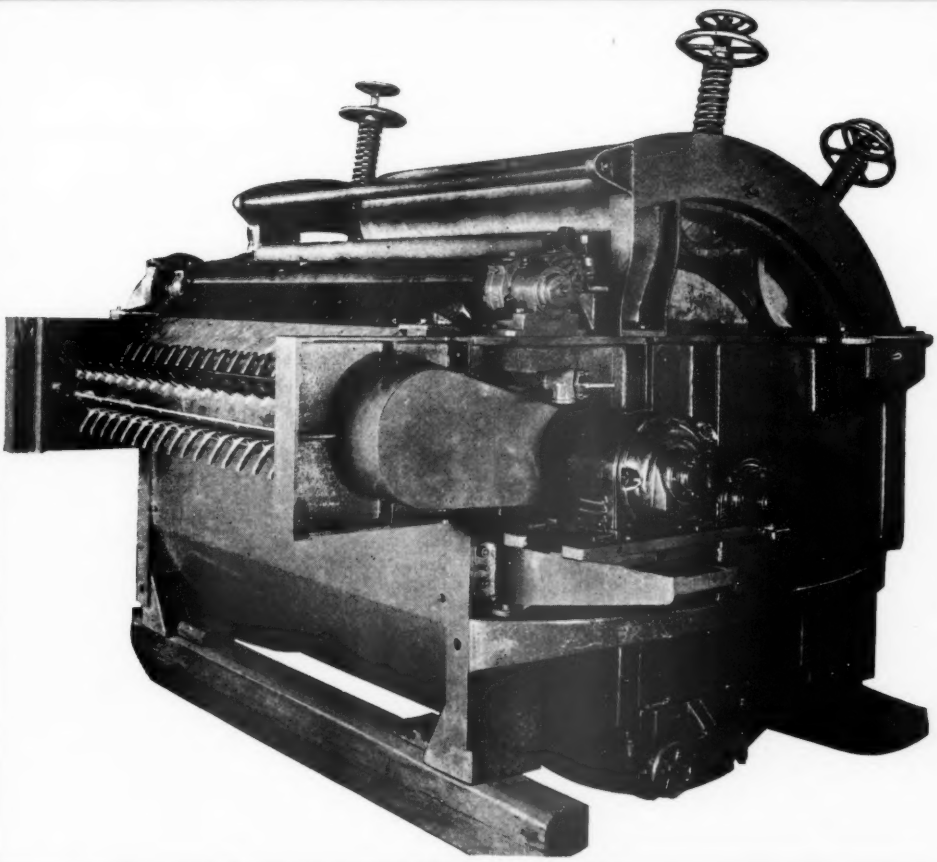

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Pacific PULP & PAPER Industry

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Japanese Extend British Columbia Timber Holdings

Plan to Increase Shipments of Pulpwood Logs to Japan

Already an important factor in the British Columbia pulp market by reason of its heavy purchases of pulp and news print during the past fifteen years, Japan has recently undertaken a new policy of safeguarding her supply of raw material by acquiring pulp wood in the form of standing timber on the Queen Charlotte Islands and Vancouver Island.

Several years ago Japanese interests took over close to a billion feet of standing timber on the Queen Charlotte Islands, source of some of British Columbia's finest spruce. Most of the spruce being cut on the islands now is shipped to England in the form of airplane spruce or to the Powell River Company or the Pacific Mills, Ltd., at Ocean Falls for pulp and news print manufacturers. Very little of the Japanese-held timber has so far been cut.

It is understood that the Japanese policy is dictated by the knowledge that Japan must for a good many years depend on the Pacific Northwest for its supply of pulpwood, as the potential fields for exploitation in Manchoukuo and Saghalin Island and elsewhere in the Far East do not adapt themselves to early development. A few years ago Japanese buyers regarded themselves amply protected in this market, but recent developments have convinced them that the safest way is to acquire the standing timber itself so as to be independent of other timber consumers.

The tendency in recent months on the part of large Canadian and American lumber and timber interests to buy large blocks of timber has gradually alienated many of the choice timber sections. This timber recently bought by such combinations as H. R. MacMillan Lumber Export Company, Canadian Western Lumber Company, Victoria Lumber & Manufacturing Company and Green Point Logging Company is being used chiefly for the manufacture of lumber to be sold in the United Kingdom or other markets generally more profitable than the Japanese. Although this timber is primarily for lumber and not pulpwood, a certain proportion of it is spruce and hemlock and the usual form of disposal is to the Canadian pulp and paper mills. It is not available under ordinary circumstances for export to Japan.

Crown grant timber—that is to say, timber controlled directly by the federal government—is the only timber in British Columbia that can be exported in the form of logs. In recent years much of the Crown grant timber has been acquired by large independent logging companies, and Japanese interests have been worried by this development since the present state of the market is such that only a relatively small amount of the cut from these areas will go to Japan. In years to come, with all the Crown grant timber used for other purposes or withheld from the market, Japan would be unable to import logs from British Columbia in any quantity.

Realization of this prospect has led to additional purchases of standing timber in British Columbia by Japanese interests. Most recent purchase was of 600,000 board feet through Ryan, Hibberson Timber Company of Victoria. The timber, located near Port McNeil, close to the north end of Vancouver Island, was previously the property of F. W. Olin of East Alton, Illinois, owner of the Winchester Arms Company and Western Cartridge Company, and was Crown granted. Purchase price was approximately $500,000.

A British Columbia company to be known as the McNeill Trading Company was formed at Victoria to negotiate the deal and hold the timber, which is mostly hemlock, spruce, balsam and cedar. The company is controlled by the Nippon Soda Company, operating in Nichome, Olemachi, Kaujimachi, Ku and Tokio. The B. C. company was incorporated on June 2, the Nippon Soda Company being allotted 4,600 of the total 5,500 shares, each representing $1000.

The directors of the company are: J. H. Lawson, Vancouver lawyer associated for some years with Powell River Company; Col. Nelson Spencer, Vancouver logging operator and tugboat owner; Shoyo Fukakawa, Vancouver; Shuhei Kishi and Tomoyoshi Kamio, both of Tokio.

Although at the time the deal was announced it was stated that the new owners might build a mill at Port McNeill, but Col. Spencer says this is unlikely.

"No definite plans for development of the timber have been made yet," said Col. Spencer, "but it is probable that the logs will be exported to Japan direct without any milling on this side of the Pacific. A large percentage of the timber will probably be converted into pulpwood, and the rest will go into Japanese sawmills and used for a variety of purposes."

Another Vancouver Island timber deal was negotiated a few days ago by K. Kagepsu, Japanese logging operator who has been running a camp at Fanny Bay. He has acquired about 200,000,000 feet of timber two miles below Cowichan Lake, some from the Canadian Pacific Railway and the rest from the Tisdale interests of Cowichan. Kagepsu will build six miles of railroad and ship his logs to Cowichan Bay on the Esquimalt & Nanaimo Railway. The logs will be sold on the open market.

West Coast Interests Announce Florida Mill

It was announced July 12th that Fernandina Pulp and Paper Company had been organized by interests associated with Rainier Pulp & Paper Company, Grays Harbor Pulp and Paper Company and Olympic Forest Products Company and that construction of a 180-ton mill costing approximately $6,000,000 for the manufacture of wood pulp from Southern pine would be started in Fernandina, Florida, immediately. It is expected that the mill will be completed so that operations can commence about August 1, 1938.

McMaster Heads Nootka Wood Products, Ltd.

After nearly a year's retirement from the pulp and paper industry, A. E. McMaster has returned to the field as managing director of Nootka Wood Products, Ltd., organized early this year by the late George Whalen, who died suddenly a few weeks ago in Vancouver, B. C.

Mr. McMaster, who has been engaged in industrial relations work in Vancouver during the past eight months, welcomes the opportunity of again becoming a factor in British Columbia forest industries.

While Nootka Wood Products, Ltd., is so far only a lumber organization, with extensive timber limits on the west coast of Vancouver Island and a large sawmill under construction, the ultimate objective is understood to be the manufacture of pulp and possibly paper. The enterprise is financed by powerful British capitalists who have extensive timber holdings in British Columbia.

Mr. McMaster is busy this month acquainting himself with his new job. He has made a flight to Nootka Sound to make a personal inspection of the property, and he has engaged a sawmill expert to make a thorough survey of the whole situation.

More detailed plans of the company will be announced by Mr. McMaster following completion of this survey.

By coincidence Mr. McMaster first came to the Pacific coast pulp industry with the Whalens. Prior to that he had been with the Canadian Pacific Railway, the Canadian Manufacturers Association and the Port Arthur Shipbuilding Company, where he met the late James H. Whalen, who with his brothers were laying plans to invade the B. C. pulp field.

Mr. McMaster, however, did not remain long with the Whalen Pulp & Paper Mills, which since then have been taken over by British Columbia Pulp & Paper Company. He joined the Powell River Company in 1921 and soon afterwards was made general manager.

Bell-Irving Elected Vice-President of Powell River

Directors Visit Mill

All officers and directors of Powell River Company were re-elected at the annual meeting held in Vancouver, B. C., in June.

The only change was the election of R. Bell-Irving as vice-president. Formerly resident manager at the mill, Mr. Bell-Irving had been assistant to the general manager in recent years, but since the resignation of A. E. McMaster the position of general manager has been vacant.

Chief executive duties are now divided between Harold Foley, executive vice-president, and Mr. Bell-Irving.

Directors of Powell River Company paid a recent visit to Powell River following the annual meeting of the company in Vancouver, B. C.

The party included President S. D. Brooks, executive vice-president Harold S. Foley, Lester Foley, J. S. Foley, Paul S. Brooks, Harry K. Brooks, Edward Brooks and R. H. Scanlon.

The group made a general tour of the big mill and observed the progress being made in the erection of the new building to house a Kamyr machine for handling pulp for export, marking a radical departure in Powell River's production policy.

The directors renewed old friendships at the paper town and took a hand in opening the Powell River baseball season, J. S. Foley umpiring while Harold Foley went to bat against Resident Manager D. A. Evans' pitching, with Robert Scanlon behind the bat.

Pacific Mills To Increase Power

Additional power development at Ocean Falls is to be provided by Pacific Mills, Ltd., British Columbia's second largest news print producer, during the present year.

Details of the project are still undecided, but the company is anxious to safeguard its power so as to prevent a recurrence of frequent shutdowns owing to deficient water supply.

The company's own engineers are looking into the question and it is hoped that the additional development will be through expansion of hydro-electric facilities. If not, a steam unit will have to be added.

"Our primary objective is to insure a steady flow of power the year round," explained John H. Young, manager. "The present condition of the market makes shutdowns costly and the rainfall during the past two or three years has been so light that we have been forced to curtail operations for no reason other than that the water supply was inadequate. We hope to remedy that condition by new hydro-electric or steam installation. But it will be a month before our plans are finalized."

Meanwhile the company is going ahead with construction of its big warehouse and dock at Ocean Falls, to cost about $200,000. Mackenzie Barge & Derrick Company of Vancouver has completed the driving of piles for the pier, and it is expected that the whole job will be finished by early September.

One of the reasons for making alterations and additions to the wharf at the warehouse is to make it possible for cargo ships to dock head-on without having to swing around broadside—often a difficult maneuver owing to the strong winds prevalent at Ocean Falls.

Powell River Construction To Be Finished in September

Officials of Powell River Company expect that their 120-inch Kamyr machine for handling wet pulp for export, chiefly to Japan, will be ready for operation some time in September.

The frame of the building which is to house the machine and provide additional space for other equipment that may be added later is now erected, and the machine is being assembled.

At first the production of the Kamyr machine will be limited to about 30 to 40 tons, although 100 tons is the eventual output planned when all equipment has been installed.

Plans have been prepared for the ultimate installation of an air dryer and additional digester and screen to bring the plant to full capacity.

The building now under construction is a 60-foot by 240-foot structure with brick walls and concrete floor. It is designed for ultimate enlargement to 120 feet by 240 feet. Storage capacity of the present building is 1000 tons of baled sulphite. A 33-inch wood stave tank, 30 feet high, will serve as a stock chest for the machine.

Brown Company Reports Profit

The Brown Company and subsidiaries report for the twenty-four weeks to May 15 a balance of $567,736, compared with a deficit of $757,691 last year.

Cavin, Marshall and Barr Form Engineering Firm

THE consulting engineering firm of Cavin, Marshall and Barr was recently organized with temporary offices in the Puget Sound National Bank Building in Tacoma.

Members of the new firm are Harold D. Cavin, Harry L. Marshall and Charles M. Barr. The three are engineers experienced in the design, construction and operation of Pacific Coast pulp mills.

"It is the purpose of our organization," said Mr. Cavin, "to offer West Coast enginering and operating experience to the pulp and paper industry on the Pacific Coast, plus the local personal contact with executives and operating men which is so essential to the successful completion of engineering and construction work. We offer the industry on the Pacific Coast modern, up-to-date mill design and construction combined with economy in both construction and operation."

Mr. Cavin, who has resigned as resident engineer for the St. Regis Kraft Company, to form the new engineering firm, first entered the pulp and paper industry in 1928, when he became field engineer during the construction of the St. Regis Kraft Company's mill in Tacoma. He remained there for a period of nine months after the original construction was completed, leaving in 1929 to became field engineer during the construction of the Puget Sound Pulp & Timber Company's bleached sulphite pulp mill at Everett, Washington, now the Soundview Pulp Company.

Upon completion of the Everett mill Mr. Cavin remained as plant engineer during the administrations of both Puget Sound Pulp & Timber Company and the Soundview Pulp Company, leaving in May, 1936, to become resident engineer in charge of reconstructing the St. Regis Kraft Company mill in Tacoma.

From 1919 until 1923 Mr. Cavin was field engineer for the Port and Harbor Division of the Port of Tacoma, and afterward was for three years construction engineer for the City of Tacoma. He was at Everett from the time the first pile was driven and remained through most of the development which involved the additions to the filter plant, the adding of number six digester, installation of the Chemipulp system, installation of additions to the bleach plant, remodelling of the breakdown mill and the redesigning of the pulp baling system.

In all his work at Everett Mr. Cavin was closely associated with G. J. Armbruster, general superintendent, and he gained an intimate knowledge of pulp mill operations.

Harry L. Marshall is a 1926 graduate from the University of Washington in structural engineering. Following his graduation he was associated with the Wallace Bridge and Structural Steel Company in Seattle and Portland, the Hofius Steel and Equipment Company of Seattle and later with the Isaacson Iron Works in Seattle, where, as structural engineer, he worked on the structural design of the Grays Harbor Pulp & Paper Company, of the Olympic Forest Products Company and of the Soundview Pulp Company mills.

For the past two years he has been with the Soundview Pulp Company during which time three additions have been made to the mill. On the last two additions Mr. Marshall served as assistant to J. H. McCarthy, resident engineer, having charge of the office design work.

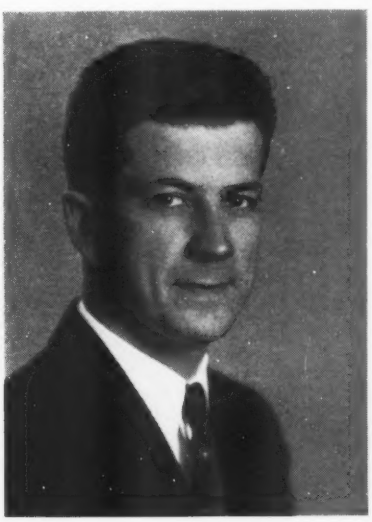
Charles M. Barr is a 1919 graduate from Pennsylvania State College in civil engineering. He entered the employ of the McClintic-Marshall Company, first taking their course in structural design and estimating. Later he did architectural and structural enginering work in Florida.

For the past ten years Mr. Barr has been with the Isaacson Iron Works in Seattle in charge of structural steel design. In this capacity he assisted Mr. Marshall in the steel design for the last two Soundview additions.

Mr. Barr had had considerable experience in other structural work including work on the design of the new Deception Pass bridge for the State of Washington. Both Mr. Marshall and Mr. Barr designed the structural steel portion of the large conveyor at the Grand Coulee dam which is over 1½ miles long. Besides structural steel design both Mr. Marshall and Mr. Barr have done a large amount of structural designing in wood and concrete.

The temporary office of Cavin, Marshall and Barr in the Puget Sound National Bank Building in Tacoma will shortly be moved to the site of the new Puget Sound Pulp and Timber Company unbleached sulphite pulp mill in Bellingham and will remain there during the seven months construction period. Later on the firm will establish permanent offices in Seattle.

HAROLD D. CAVIN



HARRY L. MARSHALL

CHARLES M. BARR

B. C. Pulp Planning Further Expansion

The principal points in this story concerning the planned expansion of the British Columbia Pulp and Paper Company's Port Alice and Woodfibre sulphite pulp mills appeared in British Columbia newspapers late in June, and are considered to have come from reliable sources.

Lawrence Killam, president of the British Columbia Pulp and Paper Company, declined to affirm or deny the newspaper reports.

Definitely committed to a policy of concentrating on rayon pulp production, British Columbia Pulp & Paper Company is going ahead with an expansion program that will result in more than doubling the productive capacity of its two plants at Port Alice and Woodfibre.

It is understood that English capital has been obtained to assist in the financing. Close to $1,000,000 is involved in the plans now being put into execution, most of the money being spent in installing equipment for the production of bleached sulphite pulp.

Capacity of the mill at Port Alice, now about 130 tons, will be brought up to approximately 300 tons. The mill at Woodfibre is now turning out about 120 tons daily, and this will be advanced to 300 tons, too, although probably not until the Port Alice mill is operating on the new basis.

Ultimate objective at Port Alice, company officials explain, is a perpetual rotating timber supply. The company is operating a logging camp on its own timber about five miles up Quatsino Sound from the mill. At the present rate of cutting this timber will last about ten years, but an area logged off earlier is now covered with new growth and it is believed that with a mill operating on a 300-ton basis, this tract will be sufficient to maintain a steady supply of pulpwood. The company will probably continue to purchase a certain amount of pulpwood from independent contractors. Average monthly log cut is 4,000,000 feet.

About 150 men are working in the woods for the Port Alice mill, with trucks and a cold deck layout. Logs are towed from the tidewater booming grounds to the mill, where they are cut into desired lengths, split and barked by a fast-working crew of Chinese and Japanese and then moved by conveyor to the chipping plant.

Directors of British Columbia Pulp & Paper Company, including President Lawrence Killam, W. H. Malkin, Cecil Killam, George Kidd and R. C. Buchanan and Secretary Oscar Jorgenson, recently visited the plant to give their approval to construction work now under way. The mill was also included in a recent tour of industrial plants by the Vancouver Board of Trade, which picked up the directors and brought them back to Vancouver on a specially chartered steamship.

The company is already producing bleached pulp, but the refining process has not been developed to the same extent as is aimed at under the new program. Most of the pulp is now being shipped to the Middle West, where it is converted into writing, bond, book and tissue papers. Japanese mills buy the pulp, bleach it further and make rayon pulp. B. C. Pulp & Paper Company plan to carry out that process here and ship the rayon pulp to Japan in completed form. The company will probably continue to produce some book and tissue paper pulp, but rayon pulp will be the major product.

Owing to the necessity of a much closer inspection and testing of pulp under the rayon processes, B. C. Pulp is installing one of the most complete control laboratories on the Pacific coast. The new quarters will comprise five spacious rooms to be occupied by a staff of eighteen, instead of the seven now employed. Several of the junior chemists are being recruited from the University of British Columbia.

Hogged fuel, brought from the Alberni Canal on the west coast of Vancouver Island, and fuel oil are used at Port Alice. The hogged fuel is brought up the coast in barges converted from old sailing ships of the Alaska Packers fleet and operated by the Island Barge & Towing Company of Victoria. Sulphur used in the manufacture of acid is from Texas, and interest is now being shown in the development of sulphur deposits on the Ecstall River, forty miles northeast of Prince Rupert. The limestone is obtained from the company's own quarries on Quatsino Sound. Lime used in the manufacture of bleach liquor comes from Blubber Bay on the west coast of British Columbia, and the chlorine used in the same process is imported from an electrochemical company in Tacoma.

California Container Expanding Plant

Approximately $200,000 is being spent this summer by the California Container Corporation, Emeryville, Calif. in the construction of a big storage and manufacturing addition to its plant which is engaged in the manufacture of corrugated packing cases from southern kraft. New and modern machinery is being installed to increase the firm's capacity.

Pomona News

Installation of the new type hood made by the J. C. Ross Engineering Company at the California Fruit Wrapping Mills of Pomona, Calif., was completed over the week-end of Fourth of July, according to Chas. G. Frampton, superintendent of the plant. A representative of the J. C. Ross Engineering Company went to Pomona to complete the work.

The rubber covered suction press for number one machine, Yankee type, will be installed late in the summer.

Roy Kelley Visits Coast Plants

Roy H. Kelley, paper mill superintendent of the Marathon Paper Mills Company, Rothschild, Wisconsin, together with Mrs. Kelley, recently visited a number of pulp and paper mills on the Pacific Coast.

Harry M. Lord Passes At New Westminster

Harry M. Lord, secretary-treasurer and purchasing agent for the Westminster Paper Company of New Westminster, B. C., died at his home in that city on June 27th at the age of 69. Mr. Lord had suffered ill health for several months. A rest in California appeared to bring about recovery which proved but temporary.

Mr. Lord had lived in New Westminster for fifteen years being one of the founders, with E. M. Herb, of the Westminster Paper Company and contributing in a large measure to its success.

He was active in community affairs being a past president of the New Westminster Kiwanis Club. He was a member of the Elks.

Surviving are Mrs. Lord, a son, Herbert Lord of Madison, Wisconsin; and a daughter, Mrs. F. T. Middleton of Glendale, California.

Pacific Coast Bleached Sulphite Capacity Exceeds All of Canada

The daily rated capacity of Pacific Coast bleached sulphite pulp mills on the American side exceeds by 23 per cent the total daily rated capacity of all Canadian bleached sulphite pulp mills, including those in British Columbia.

American Pacific Coast capacity is 1,820 tons per day. The daily rated capacity for all Canadian bleached sulphite pulp mills is 1,475 tons. The Pacific Coast American capacity exceeds the Canadian by 345 tons per day or 23.3 per cent.

When the Lake Sulphite Pulp Company, Limited, completes its mill at Red Rock, near Nipigon, Ontario, the Canadian capacity will be raised 200 tons to 1,675 tons per day, 145 tons less than the American Pacific Coast capacity, which will then exceed all Canadian by 8.6 per cent.

Pacific Mills Earnings Rise

The report of Pacific Mills, Limited, with its mill at Ocean Falls, British Columbia and its converting plant at Vancouver, for the fiscal year ending April 30th, 1937 shows a net profit nearly double that for the preceding fiscal year.

In his report to shareholders, dated June 25th, A. B. Martin, president of Pacific Mills, Limited, makes the following statement:

"Operations for the year, after all charges for depreciation, depletion, interest and income taxes, resulted in a net profit of $576,657.70, equivalent to $6.09 per share on the outstanding ordinary stock after providing for the dividend of $6.00 per share on the preference stock. In the preceding fiscal year the net profit amounted to $294,712.22, equivalent to $2.33 per share on the outstanding ordinary stock, after provision for dividends on the preference shares.

"Regular dividends amounting to $119,934.00 were declared on the preference stock during the year and on April 4, 1937, a dividend of $2.00 per share, amounting to $150,000.00 was declared on the ordinary stock payable May 1st. After giving effect to these dividends and absorbing net surplus charges of $15,411.82, earned surplus showed a net increase of $291,311.88 for the year.

"The Company redeemed on February 1, 1937, the balance of the outstanding Guaranteed 6% Mortgage Bonds due 1945, amounting to $714,000.00, such redemption being financed by a bank loan of $750,000.00, payable $150,000.00 annually over a period of five years, annual interest rate 3%.

"The increase in earnings this year is mainly attributable to an increase of approximately 16% in sales tonnage volume, combined with operating economies effected by recent plant improvements, together with a reduction in interest charges as a result of the redemption of the Company's mortgage bonds. The price of news print for the calendar year 1937, delivered Pacific Coast ports, is $42.50 per ton, or an increase of $1.50 per ton over the previous year. The principal Eastern Canadian mills have announced a price of $50.00 per ton for the first six months of 1938, but there has been no general announcement of Pacific Coast prices and will probably not be until the Fall, as has been the custom. In view of rapidly increasing costs of materials, manufacturing and transportation, this increased price, in our opinion, is fully justified.

"In regard to the Company's dividend policy, the directors deem it advisable to retain a substantial part of earnings for serial note retirement, necessary plant improvements and additions and additional working capital to finance increased inventories and receivables resulting from a general expansion of the Company's volume of business. Approximately $620,000.00 was expended during the year on plant additions and improvements in order to effect operating efficiencies and economies and it is necessary that substantially in excess of this amount be so expended during the forthcoming fiscal year."

As of April 30th, 1937 Pacific Mills, Limited has current assets of $2,602,830.83 against current liabilities of $1,000,750.40, a ratio of 2.6 to 1.

Current assets consisted of cash, $434,260.31; accounts receivable $573,191.46; and inventories valued at cost or market, whichever was lower, of $1,595,379.05.

Current liabilities consisted of $370,878.66 in accounts payable; $150,000 for serial notes payable to bank maturing prior to April 30th, 1938; $200,448.30 in dividends payable; and, $279,423.44 as a reserve for Dominion and Provincial taxes.

As of April 30th, total assets were $17,826,050.11 while total liabilities aside from capital stock and earned surplus, were $1,600,750.40. Earned surplus stood at $6,726,399.71, an increase of $291,311.88 over the total April 30th, 1936.

Capital stock, issued and fully paid as of April 30th, 1937, stood at $9,498,900.00, consisting of 19,989 shares of 6 per cent cumulative preference stock, $100 each; and, 75,000 ordinary shares of $100 each.

The summary of profit and loss and surplus account for the year ending April 30th, 1937, shows a gross profit before depreciation, depletion, interest on bonds and on serial notes and dominion and Provincial taxes of $1,486,097.70. Depreciation amounted to $631,984.86; depletion totalled $10,742.23; interest on bonds and serial notes payable incurred to retire bonds of $38,712.91; provision for Dominion and Provincial income taxes of $228,000.00.

Officers of Pacific Mills, Limited are: Louis Bloch, chairman of the board; A. B. Martin, president; George P. Berkey, vice-president; F. N. Youngman, vice-president; J. D. Zellerbach, vice-president; J. A. Young, vice-president and treasurer; and, J. H. Lawson, secretary.

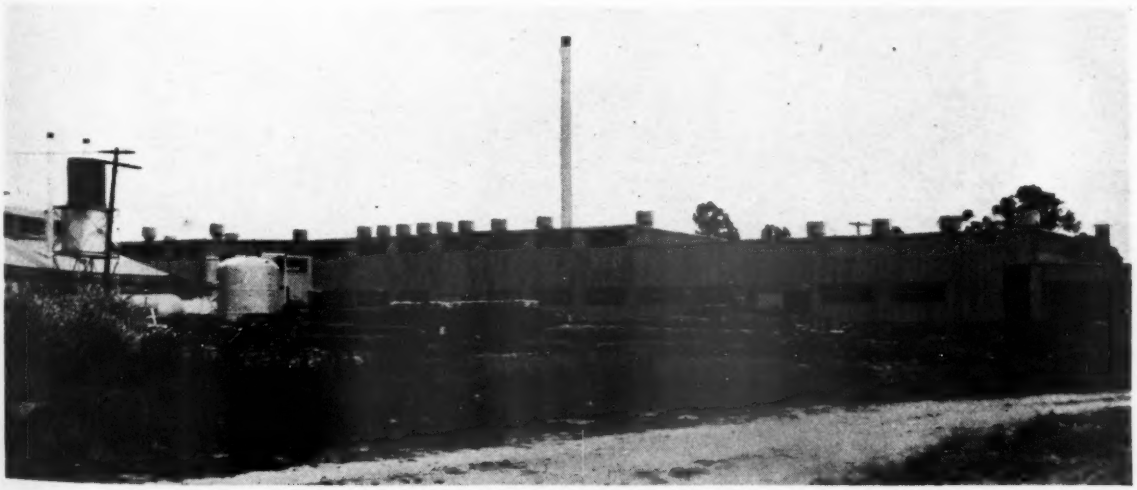
The following men are directors of Pacific Mills, Limited: George P. Berkey, Louis Bloch, C. A. Cotterell, Mayne D. Hamilton, J. H. Lawson, A. B. Martin, W. E. Wintemute, J. A. Young and F. N. Youngman.

Rayon Report Available This Month

The formal report, tentatively titled, "Economic Possibilities for Rayon Production in the Columbia River Area," is expected to be released by the War Department late in July. A nominal charge will be made for copies of the report.

A preliminary summary of this report, which was prepared by W. C. McIndoe, industrial chemist in the Office of the Division Engineer, North Pacific Division, 523 Pittock Block, Portland, Oregon, was published in the April number of PACIFIC PULP & PAPER INDUSTRY.

Copies will be available at the Office of the Division Engineer in Portland.



The new roofing plant of the United States Gypsum Company at Southgate (Los Angeles), as it appeared early in July » » » Construction will be completed shortly.

Columbia River's Interesting Bleach Plant

AFTER many years of operation on unbleached pulp produced in their Vancouver, Washington, mill, the Columbia River Paper Company is now turning out a large variety of bleached papers, the result of recent completion of a new bleach plant.

Innovations in design of the new unit mark it as unique in the realm of bleaching on the Coast, and make it of particular interest to the industry.

A number of advanced ideas have been incorporated by Nils G. Teren, vice president and manager, who laid out the plant in theory and specification, with certain helpful suggestions from Tom Moffitt and the Hooker Electrochemical Co. Among these are the design and lining of the bellmers, the use of unsettled bleach liquor, and washing of the pulp after the rifflers instead of before.

Ample water for the plant is provided by a well drilled directly beneath the building. With a pump powered by a 100-h.p. General Electric motor, it supplies 2,000 gal. per min. of crystal clear water, eminently suitable for the bleaching process.

Unbleached sulphite stock supply is maintained in a storage chest just outside the building, from where it is pumped into the feed lines. Here it is mixed with white water and pumped to the Oliver filter at the top of the building. It is discharged from the filter at 9.2 per cent consistency, going to a shredder which breaks it up and dumps it on a white rubber belt conveyor extending to the bellmers. Water from the filter leg is returned to the white water tank.

There are two double bellmers of German type, constructed of concrete. In accordance with the modern trend of industry, these are "streamlined" so as to offer the least possible resistance to the flow of stock. They are squat, only eight feet deep, and have no sharp edges or corners. All corners are rounded, and curves are as sweeping as space permits.

The bellmers are not tile lined, as is the usual practice, but are surfaced with a new rubber paint, to reduce friction.

Automatic control of bellmer temperature is maintained by the use of two Taylor Fulscope recording temperature controllers. When these are set at the desired temperature, usually 100 deg. F. at the Vancouver plant, the instruments control steam valves so that constant temperature is maintained throughout the process.

A third bellmer of similar type is to be installed shortly, to make possible greater bleaching capacity when desired.

Each bellmer has a capacity of eight tons of pulp at eight per cent consistency. According to present practice, each charge now is from six to six and one-quarter tons at nine per cent.

When bleached, the pulp is dumped from the bellmers into the dump chest. For continual agitation this chest, as well as the two bleached stock wash chests, are equipped with single bellmer engines. The one dump chest, 12 feet deep, serves both bellmers. In it the pulp is agitated at lower consistency, about four per cent.

Instead of now going to the washer, the pulp is pumped direct to the riffler head box and through six channels of rifflers. It comes off the rifflers at .30 per cent, which is standard practice, and goes direct to the Oliver-Young washer, from which it is dumped to the two bleached stock wash chests, ready to be sent to the beaters.

This washer, with screen 6 feet in diameter with 12-foot face, is the largest and the only one of its size ever made. It has a large hydraulic capacity, a primary requirement in Mr. Teren's bleaching plan, in which the pulp is washed at .30 per cent consistency or less, instead of the usual one per cent.

The machine is built to handle 150 tons per day when required, but at present is running about 70 tons. At this production it turns from one to three r.p.m., and handles 4500 gal. per min. With a change of gear so as to operate from four to 12 r.p.m., it would handle 9000 g.p.m. and produce 150 tons per 24-hr. day at the same consistency. The real rating of the washer is liquid capacity, however, rather than tons, since tonnage depends entirely on the liquid capacity of the unit, and the consistency of the pulp.

On this machine the doctor does not touch the wire, a Hydrair discharge being provided. The pulp sheet, ⅛ to ¼-in. thick, is lifted by a water jet shooting up under the doctor. No wire cleaning spray is necessary.

The water discharges to the bleached stock wash chests below, from which it is drawn to the beaters by a pump controlled from the beater room. Tests of pulp from the washer made early in the

The New Bleach Plant at the Columbia River Paper Mills, Vancouver, Washington.

operation of the plant showed a washing efficiency of 98.5 per cent, and later adjustments are said to have improved this figure.

One of the most interesting features of the new plant is the use of unsettled bleach liquor, which many operators did not believe could be successfully used. At Vancouver they have done so with marked success.

Oyster shell lime is slacked in a slacking tank with turbine agitator, and is then pumped to the lime screen. This is non-corrosive metal screen of exceptionally fine mesh, 170 mesh, down which the solution flows at an angle of about 60 deg. Rejected lime is passed to a sand screen and back to the lime screen until all the lime is obtained.

It is then passed to the dilution tank. By the use of this screen, constructed by the company at the plant, and by careful control of consistency, it is possible to use the unsettled liquor. This is a new practice on the Coast; this is.

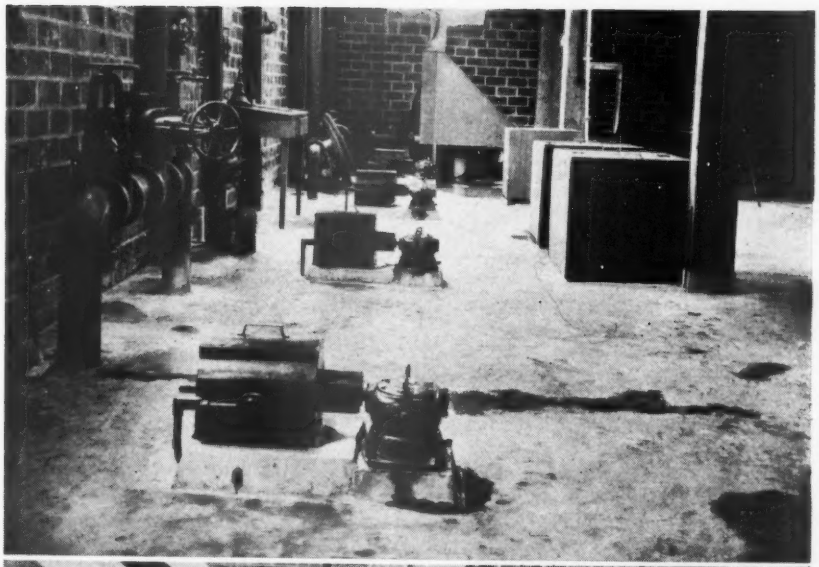
●

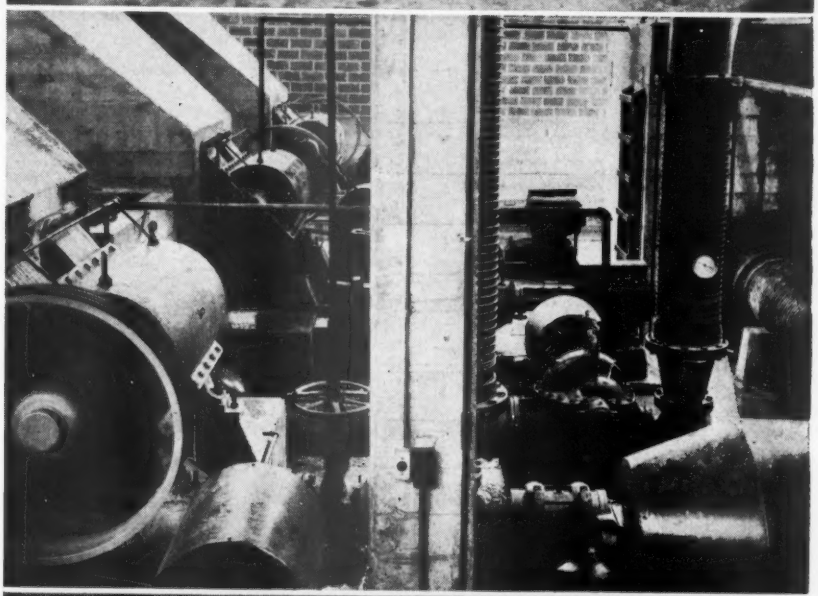
Agitation of the four bleach liquor tanks is accomplished by the 3-h.p. Westinghouse motors driving turbine agitators through Link-Belt speed reducers, shown in the top photograph. In the background is the 170-mesh lime screen.

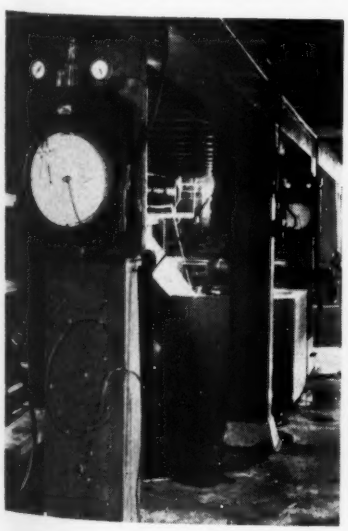
In the center, the three single bellmer engines, on the left, circulate the pulp in the dump chest and the bleached stock wash tanks at a consistency of four per cent. On the right are the pumps and lines which carry stock from the dump chest to the riffler head box, and from wash tanks to storage chest.

At the bottom, right, is shown the large Oliver-Young washer.

Below, two Taylor Fulscope recording temperature controllers control the temperature of the stock in the bellmers, maintaining a predetermined temperature.







in fact, the first plant in the West without settling tanks.

The lime goes into the diluting tank at .60 per cent consistency, and is diluted here to .33 per cent. It is continually agitated by turbine agitators, driven by 3 h.p. Westinghouse motors through speed reducers. Each liquor tank, holding 12,200 gal., is similarly equipped.

In the next tank the lime is chlorinated at 40 gr. per litre, with continual agitation, and then pumped to the bleach liquor storage tank. When needed, it goes to the measuring tank on a level above the bellmers, from which each charge is taken.

W. E. Foren, superintendent of the paper plant, is utilizing the pulp from the bleach plant, which is supervised by sulphite superintendent T. H. Grant, to make a number of new Columbia River Paper Company products. These include sulphite bond paper, drug bond, envelope paper, bleached meat wrap, and various types of other bleached products such as napkins, etc. Variety of production in the mill has been greatly increased.

The bleach plant has been in operation less than six months, but even this early in the game the mill is making an exceptionally clean sheet—the real test of bleach plant design.

Everett Starts West Tacoma Mill

The West Tacoma paper mill of the Everett Pulp & Paper Company was scheduled to begin operating around July 15th, according to an announcement by W. J. Pilz, vice-president and general manager. The plant has not operated since it was purchased several years ago from the old Cascade Paper Company.

One paper machine will operate at present, producing 35 tons per day of book and writing papers, the same as are produced by the Everett Pulp & Paper Company's mill at Everett, Washington.

Before resuming operations the mill has been completely rebuilt with the exception of the 152-inch Pusey & Jones paper machine, which was installed in 1927.

Actually the West Tacoma plant is a new mill, completely modern with new equipment of the latest and most efficient type. Almost none of the former equipment remains but the two paper machines.

The old soda pulp mill was dismantled and the building turned into a modern de-inking plant. Soda pulp is being shipped by rail from Everett where production has been increased approximately 10 tons per day.

Buildings have all been improved, the construction work being done by the Austin Company of Seattle. Machine room roof was raised six feet and a hood and monitor skylight installed over the one paper machine. A new roof with six skylights was constructed over the beater room.

A new chemical building 51x70 feet, three stories high, was constructed. The ground floor will be used for 750 tons of clay storage, the second floor for storing chemicals in solution, and the top floor will be used for mixing size, etc. Clay will be handled in bulk.

The de-inking plant is of the latest Shartle type employing the famous Shartle Tug Boat Annie for de-fibering and the Shartle de-inking system. Shartle screens were installed ahead of Sumner washers in the de-inking system.

Waste paper stock is cooked, screened, washed, de-inked, washed again bleached in three concrete chests, screened again, washed again and sent to storage.

Five new E. D. Jones beaters and one new Jones jordan were installed, together with two new Bird 3-A paper machines constructed of brass.

No iron comes in contact with the stock at any point in the mill system, all materials being non-ferrous to prevent rust and scale contaminating the stock.

All piping was replaced with wood and brass. Everett's idea was to provide the cleanest stock possible.

Approximately fifteen new pumps were installed of both the centrifugal and vacuum types.

Eletcrical wiring was all replaced. The new wiring is for 440 volts while the old was for 2300 volts. A new railroad siding was constructed to facilitate shipping both in and out of the West Tacoma mill.

Careful attention was paid to the water supply. Wells were drilled by the N. C. Jannsen Drilling Company and are now producing 5,500,000 gallons of pure water per day. The entire mill water system is new including a new fire protection system with a 65,000 gallon storage tank and a tank having 100,000 gallons capacity for mill process purposes.

A new winder was installed on the paper machine to improve the quality of the rolls.

Arthur N. Drips is in charge of the West Tacoma mill as mill manager and J. I. Fitch is superintendent. Both Mr. Drips and Mr. Fitch were with the old Cascade Paper Company. Mr. Drips has remained at the mill but Mr. Fitch has been at the Everett mill since West Tacoma was closed down. Other key men at West Tacoma are all from the company's Everett mill.

All facilities have been provided at West Tacoma for the production of the same high quality papers for which the Everett mill is well known.

Officers of the Everett Pulp & Paper Company are: A. H. B. Jordan, president and treasurer; W. J. Pilz, vice-president and manager; L. P. Fortier, general superintendent of both the Everett and West Tacoma mills; J. L. Murray, sales manager, and A. B. Moody, assistant secretary.

The Everett Pulp & Paper Company maintains sales offices at San Francisco which is in charge of J. L. Murray, sales manager; at Los Angeles with A. A. Ernst in charge. R. A. Gates and J. E. Horton assist Mr. Murray in the San Francisco office. H. E. Stewart and Jerry LeCuyer, with offices at the mill, represent the company in the Pacific Northwest.

A broad line of book and writing papers are produced by the Everett Pulp & Paper Company. A large converting plant produces school and office supplies. A complete list of Everett products appears on page 83 of this journal's Annual REVIEW NUMBER, published in May of this year.

A fully illustrated story describing the new West Tacoma mill will appear in an early number of PACIFIC PULP & PAPER INDUSTRY.

Making Alpha Cellulose From Bagasse

Maui Agricultural Co., Ltd., through their agents, Alexander & Baldwin, Ltd., 215 Market Street, San Francisco, early this year built a semi-commercial pulp and paper mill for the production of high grade alpha cellulose from bagasse, after several years of experimentation at their Paia mill. The complete pulp drying machine was furnished by the Pusey & Jones Corp., Vacuum Washer and screens by Improved Paper Machinery Corp., digesters and other equipment were designed and built in the Hawaiian Islands. The plant has been in successful operation for some time and plans are now being prepared for a complete 100 tons per day commercial mill, which is to be housed in a five-story building.

Herman L. Joachim, Consulting Engineer, 215 Market Street, San Francisco, California, is in charge.

Western Containers Expands Again

Western Containers, Incorporated, of Seattle announced early in July through V. J. Walsh, managing director, that its manufacturing facilities will be expanded more than 50 per cent immediately.

The new addition will be constructed by the Austin Company adjacent to the present plant which was built in 1933 and which was increased 40 per cent in floor space in 1935.

This latest construction calls for a building covering 18,000 square feet which will give the company a total of 54,000 square feet of factory space, more than one and one-quarter acres.

Western Containers produce corrugated fiber shipping containers and allied products for shipping. Major markets are the fruit and vegetable canning industries.

Grays Harbor to Build New Warehouse Dock

At the end of June the Grays Harbor Pulp & Paper Company of Hoquiam, Washington, called for bids for the construction of a new dock and warehouse.

The warehouse will be approximately doubled in capacity and the extension of the dock will increase the total length to around 500 feet. The warehouse will be the exact size of the present one.

Work was scheduled to begin shortly after letting of the contracts, around July 15th.

Safety Work Reduces Oregon Rate

As of July 1, the manual basic rate of workmen's compensation insurance in the Oregon pulp manufacturing industry, was reduced by the State Industrial Accident Commission from $3.25 per $100 of payroll, to $2.85.

This reduction was made possible by the favorable accident experience in the industry, and may be credited to the hearty cooperation of employes and management, and to the intelligent supervision of the industry's safety directors.

The base rate is set by the Commission each year, as determined by the relationship between the amount contributed to the industrial accident fund by the industry, and the amount paid out on claims under the Workmen's Compensation Law. An increase in accidents, if requiring additional compensation payments above a certain percentage, results in a rise in the base rate for the industry for the next fiscal year. A lowering of the accident rate and of compensation payments, makes possible a reduction in the base rate, with saving to the industry both in money and, more important, lost lives and broken bodies.

The current reduction in the base rate does credit to the industry as a whole, but does not necessarily reflect the safety standing of individual companies. The base rate applies only to those concerns which are contributors to the industrial accident fund during their first full fiscal year, to those contributing less than $50 per year, or to those whose employes have received in claims from 70 to 80 per cent, including incidental costs, of the amount paid into the fund. In the second year of coverage under the law, the first year's accident experience is taken into consideration, and credits or penalties applied. The rate for those companies covered for five or more years is determined by their accident record average for the five preceding years.

When the total amount paid out of the accident fund for injuries to an employer's workmen and costs incidental to the claims or set apart for catastrophe fund, etc., is less than 50 per cent of the contribution made by the employer during the period involved, not including the amount retained from the workmen's wages, the contribution of the employer in the next fiscal year is reduced by 40 per cent. From 50 to 55 per cent, the rate is reduced by 25 per cent; from 55 to 60 per cent it is reduced by 20 per cent; and so on until the base rate is reached where the amount paid out constitutes 70 per cent and less than 80 per cent of the contribution.

Conversely, if the rate is 80 per cent and less than 85 per cent, the rate is increased 5 per cent, and is scaled upward until if the amount paid out is 100 per cent or more of the contribution, a penalty of 30 per cent is imposed during the following year.

The effect of this is that each individual company may make its own rate within certain limits. A favorable accident experience may earn a credit of 40 per cent; a bad record may bring a penalty up to 30 per cent of the base rate.

Most of the pulp and paper manufacturing companies have, by efficient safety work, earned credits of 20 per cent and more. The average of the industry has been such that a reduction of approximately 12 per cent in the base rate itself has been justified.

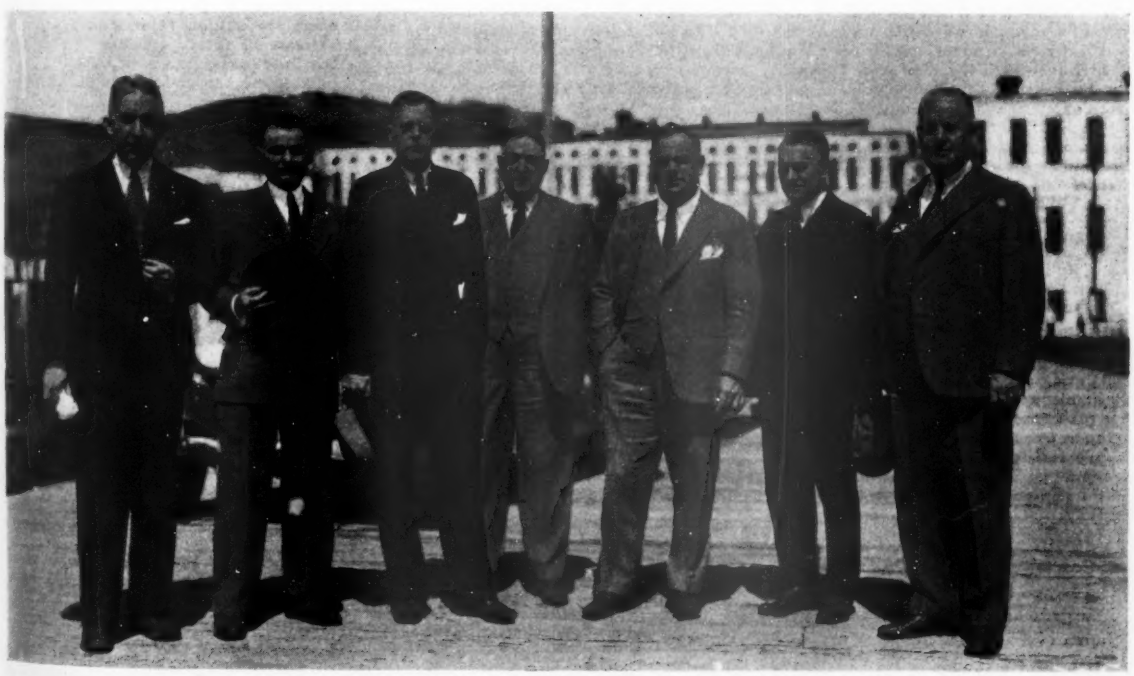
It is concrete evidence that safety work pays, from the financial as well as the humane standpoint.

Powell River Visitors

Recent visitors to Powell River to look over the big news print plant there were Manchester Body, publisher of the Los Angeles Evening Express; William Dunstan, V. C., general manager of the Herald and Weekly Times of Melbourne, Australia; H. P. F. Blundell, of the Wellington Post, New Zealand; James Sutcliffe of the Herald and Weekly Times, Melbourne, Australia; Lester Foley, president of the Foley Lumber Company of Foley, Fla.

Bindshadler Dies At Lebanon

Wm. Bindshadler, old employe of the Crown Willamette Paper Company, by whom he was employed at the Lebanon mill for some years, passed away June 6. The company had retired him by voluntary contribution on June 1.



Some of the directors and officers of the POWELL RIVER COMPANY were photographed during their recent visit to Powell River, B. C., after the annual meeting of the company in Vancouver, B. C. » » » Left to right the group includes: HAROLD S. FOLEY, ROBERT H. SCANLON, PAUL S. BROOKS, J. S. FOLEY, EDWARD BROOKS, D. A. EVANS and HARRY K. BROOKS.

Rayon and other CHEMICAL USES OF WOOD PULP

Rayon in Tires

The success of rayon cord in extra heavy duty truck and bus tires recently put on the market has caused the Du-Pont Rayon Company to lay plans for doubling its production of rayon tire cord to 4,000,000 pounds per year. The Viscose Company is working on plans for production of the same product. Rayon fabric is said to withstand the high temperatures caused by internal friction more successfully than the best cotton fabric.

The cost of the new rayon cord tires is at present high and hence they are limited to severe bus and truck duty, but the rayon industry expects the numerous advantages of the rayon fabric will shortly bring it into passenger car tires and lower the cost.

If this market develops as is anticipated it will rapidly expand the consumption of rayon and naturally increase the use of bleached sulphite pulp in the rayon industry.

Japanese Establish Staple Fiber Research

The Department of Commerce and Industry of the Japanese government has decided to establish a staple fiber research institute to accelerate the development of the domestic staple fiber industry. According to Trade Commissioner Paul P. Steintorf in Tokyo, an appropriation for this purpose of 458,000 yen has been included in the department's budget for the 1937-1938 fiscal year and approval has been secured for the expenditure of 1,000,000 yen in each of the two subsequent fiscal periods. The research institute will be established in the Yokohama Silk Experimental Station.

New Japanese Rayon Plants

It is reported by the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce that as new production levels were being reached in Japan Proper, expansion of rayon producing facilities were going forward at a rapid pace in Chosen. Companies building plants there and the planned capacity of these units follow:

Concern	Planned Daily Capacity
Dai Nippon Spinnig Co.	20 tons
Kanegafuchi Spinning Co.	10 tons
Japan Nitrogen Co.	10 tons
Sowa Rayon Co.	10 tons
Kurashiki Rayon Co.	10 tons

It is also reported that the Teikoku Jinken and the Toyo Spinning Company are considering erecting rayon plants in Chosen.

Belgium Defines Rayon Terms

A Belgian royal decree in March forbids the use in trade of the term "artificial silk," and all materials formerly so called must be described as rayon (rayonne), effective June 1st, 1937. The decree also limits the use of "silk" in the display and sale of merchandise to goods actually made of silk and stipulates that merchandise containing 50 per cent or more in weight of silk may be described as "silk mixed with . . ." (whatever other textile fiber is included) while mixtures containing less than 50 per cent in weight of silk must indicate the principal fiber content followed by the words "mixed with silk."

Japanese Pulp Imports for April

Imports of wood pulp into Japan increased 38 per cent in April over March, 1937, and 79 per cent over March, 1936, with the United States sharing largely in the increased trade.

April imports totalled 47,943 short tons of which 27,272 were imported for the rayon industry, and 20,671 tons for paper making.

The Japanese government has decided to permit the importation during 1937 of 250,000 metric tons of pulp for paper making and imports of pulp for rayon manufacture of 300,000 to 350,000 tons during the current year.

Italy Exports Much Rayon

It is expected that an even larger proportion of the Italian rayon will be exported this year than usual, possibly between 70 and 75 per cent. Exports of staple fiber will also be increased substantially, although the percentage may not reach that of 1936, which was about 30 per cent, owing to the 60 per cent increase projected for production by Italian mills in 1937 over 1936 .

Japanese Rayon Pulp Imports

Imports of pulp for rayon manufacture in January and February of this year, were as follows:

Country.	January, 1937 Pounds	January, 1937 Value in Yen	February, 1937 Pounds	February, 1937 Value in Yen
United States	18,724,267	2,152,583	12,572,666	1,476,012
Canada	.....	.....	67,333	8,196
Finland	5,631,466	643,465	.....	.....
Sweden	4,728,667	548,888	9,812,400	1,141,673
Norway	10,783,733	1,290,129	7,032,267	846,453
Czechoslovakia	.....	.....	429,067	43,859
Total	39,868,133	4,635,065	29,913,733	3,516,193

Rayon in Czechoslovakia

The daily capacity of domestic rayon plants increased from 10,400 to 13,500 kilograms during 1936. (These figures are on a 3-shift and 125-denier basis.) The average denier remained at approximately 115 in 1936, about the same as in 1935. Domestic consumption is estimated to have increased from 6,341,000 kilograms in 1935 to 8,426,000 in 1936, with sales of domestic rayon gaining 21 per cent and imports 34 per cent, as a result of better occupation in rayon manufacturing.

Japanese Cellophane Industry Growing

The manufacture of transparent cellulose sheeting was initiated in Japan about 1925, at which time several small factories were established in Tokyo and Osaka. With few exceptions, however, they all failed. By 1930 and 1931 there were in production about 20 companies all hopeful of the future and encouraged by the general advance of other fiber industries in Japan. Competition was very keen and prices declined from year to year.

The output of the Japanes. transparent wrappings industry amounts to 29,200 reams per month, equal to 80 per cent of the production capacity. The total output of the eight companies which are members of Cellophane Sales Guild Company in January for the current year amounted to 23,700 reams. The association is not limiting output of all products made by the member companies, agreements involving only plain white and colored sheets which represent 65 per cent of the total output of the member companies and 53 per cent of Japanese production. (It may be noted that one ream of these particular classes contains 500 sheets measuring 90x100 cm.) Roll transparent sheeting is produced by only four companies with a combined output of about 6,900 reams per month, representing 20 per cent of the total output.

Among the specialties manufactured from transparent cellulose sheeting is a material for women's hats, comprising hemp thread rolled and covered with cellophane. A moisture-proof cellophane is also produced in Japan. There is only one firm manufacturing embossed cellophane in Japan. The output thus far has not been very great by reason of the fact that efforts have been directed toward making a trasparent sheet. A textile cellophane is produced in large quantities and is expected to be a good export product. A hard cellophane suitable for the manufacture of toys and similar articles including lamp shades is also produced by one company in Japan. (Assistant Trade Commissioner Carl H. Boehringer, Tokyo.)

Japanese Rayon Stocks Increasing

A growing apprehension is evident over increasing stocks of rayon cloth and yarn attributed to the imposition of higher duties on certain non-British rayon goods by British India and declining demand from Australia, Africa and Latin America. It is reported that the Rayon Producers' Association contemplates a further drastic increase in production curtailment by suspension of operations in several of the larger mills for 20 days.

The rayon market was fairly active during April but the undertone was weak (owing to excess stocks and lessened export demand) with prices showing a slight decline. April production of rayon yarn by member mills of the Japan Rayon Association was reported as 26,928,000 pounds, a new high record, and an increase of 29 per cent compared with the output in April of last year. April exports of rayon yarn amounted to 4,156,000 pounds, a gain of 564,000 compared with the preceding month's total but 931,000 pounds less than April, 1936, shipments.

Exports of rayon and rayon-mixed piece goods during April aggregated 36,997,000 square yards with the cumulative total for the 4 months reaching 154,522,000 square yards, a decline of 5 per cent as compared with exports for January-April, 1936. The staple-fiber industry continued active with new records in exports of both staple fiber and fiber yarn during April, although shipments of textiles of staple fiber declined somewhat. (Radiogram, Received June 7, from Commercial Attache Frank S. Williams, Tokyo.)

Italian Rayon Production Up 28.5% in 1936

Production of synthetic textile fibers in Italy during 1936 reached 88,714 metric tons, an increase of 28.5 per cent over the 1935 output of 68,998 tons, according to official statistics. The output of staple fiber (cut fiber) rose about 60 per cent to approximately 48,000 metric tons, while production of rayon (continuous filament) remained practically stationary at about 40,000 tons, according to trade estimates. The gain in staple fiber was attributed to its increased use as a substittue for imported raw materials, particularly cotton, in the manufacture of goods intended for domestic consumption and for shipment to the Italian colonies. Only about 18 per cent of the staple fiber produced in Italy was exported in 1936, while slightly more than half of the rayon output was sold abroad, according to trade estimates.

A recent survey of the industry indicated that the number of spinnerettes increased by 2,910 to 142,504 during 1936, of which 117,520, or 82.5 per cent, were active at the close of the year; it also showed that of 31 plants, 24 were active and 7 out of commission. Production of synthetic textile fibers in Italian plants during January totaled 8,660 metric tons, or about 21 per cent higher than in January 1936. Since then production has shown a further upward trend, and it is planned to reopen (within 2 or 3 months) 2 of the closed plants which are being modernized. It is understood that the machinery in the other 5 idle plants is more or less obsolete and that it will not be replaced, according to present calculations. The increase in production during the current year is expected to be mainly in staple fiber. The output of "Lanital" (a synthetic fiber from casein, regarded chiefly as a substitute for wool) increased to approximately 10,000 kilograms daily during April, the highest figure attained since commercial production of this new fiber began.

British Rayon Production on High Level

Production of rayon yarn, staple fiber, and rayon waste during April amounted to 13,670,000 pounds, a figure exceeded only once previously, the record figure of 13,810,000 having been attained in July, 1936. For the first 4 months of the current year, production aggregated 49,650,000 pounds, an increase of 2,740,000 over the output for January-April, 1936, of 46,910,000 pounds. All sections of the rayon industry were reported to have been well employed in May. Rayon producers generally were finding it difficult to keep pace with demand from the weaving section of the industry. Spinners of staple fiber and mixture yarns reported steady employment and were particularly busy on wool-and-staple-fiber mixture yarns for the circular knitted underwear trade. Dyed and bleached viscose yarn was in demand from casement-fabric manufacturers who reported very busy conditions.

Mexico Short Of Rayon Yarn

A shortage of rayon yarn is said to have caused some of the smaller manufacturers of rayon cloth and knit goods to curtail production or to suspend operations in the latter part of May, according to trade reports. The larger buyers and importers of rayon yarns have made a practice of carrying fairly large stocks which they sold in small quantities occasionally to the smaller manufacturing establishments, but the larger plants are said to be running very short of yarn supplies. Imports of rayon yarn come mainly from the United States, Italy, Japan, Switzerland, and Germany. (Assistant Commercial Attache Edward D. McLaughlin, Mexico City.)

French Rayon Production Up 20% in 1936

Production of rayon yarn in 1936 now is estimated at 66,000,000 pounds, an increase of 11,000,000 over the 1935 output. Approximately 70 per cent of the output was consumed in France and the remainder exported. Imports of rayon yarn in 1936 amounted to 2,606,780 pounds. At the end of 1936, there was practically no carryover of rayon. Of the 1936 production, approximately 90 per cent consisted of viscose yarn and 10 per cent of acetate yarn, or 59,400,000 and 6,600,000 pounds, respectively. Consumption of viscose yarns in knitting mills increased appreciably during 1936. The French output of staple fiber is estimated at 12,000,000 pounds by trade sources. The merger of 6 French rayon producing companies (originally reported in December last) has been held up by certain difficulties which have arisen in the exchange of shares between the Societe de la Viscosa Francaise and the participating companies in the 4 months alloted for this purpose. An extension of 3 months has been granted.

Rayon yarn producers operated on a fairly regular basis during May although demand moderated somewhat. Prices, however, remained firm. While foreign competition in the domestic market continued to have an adverse effect on manufacturers of rayon fabrics and novelties, the augmentation of the export premium on rayon goods has enabled the industry to meet this competition more advantageously than the silk manufacturing industry which remained depressed during May. Both silk and rayon weaving mills have reduced hours and silk weavers curtailed production still further during May. (Consul Charles J. Pisar, Lyon.)

Consider Making Rayon In India

The feasibility of rayon manufacture in India is being investigated by the Industrial Research Bureau of the Indian Government. During the fiscal year ended March 31, 1937, India imported "artificial silk yarn" (rayon) to the value of 9,939,000 rupees and rayon and rayon-mixed piece goods to the value of 28,320,000 rupees. Rupee equivalent to $0.3737 at average exchange rates for the fiscal year. (Trade Commissioner George C. Howard, Calcutta.)

Imports of rayon yarn into the Presidency of Bombay during the March quarter of 1937 totaled 3,724,710 pounds, of which Japan supplied 2,898,768, Italy 697,117, and the United Kingdom 59,731. The United States shipped 181 pounds in March, but none in the preceding 2 months. Imports of rayon into Bombay during recent months have shown a progressive increase attributed to the growing consumption of rayon in local cotton mills and by handloom weavers. (Vice Consul C. M. Gerrity, Bombay.)

Swedish News Print Exports in 1936

In 1936 Sweden exported 180,000 metric tons of news print as compared with 207,000 metric tons in 1935 and 190,000 in 1934.

Some 80,000 tons were shipped to the United States in 1936, compared with 87,000 tons in 1935. In 1936 24,000 tons were shipped to Argentina as compared with 29,000 tons in 1935; 16,500 tons to Denmark in 1936 as against 20,500 tons in 1935; and only 9,000 tons to France compared with 13,400 in 1935.

Exports of Swedish news print to Great Britain increased 7,000 tons in 1936 over 1935, rising to 17,600 tons.

New Members of Superintendents Assn.

New Pacific Coast members of the American Pulp and Paper Mill Superintendents Association include Walter M. Bain, who recently left the Crown Willamette Paper Company's Camas mill to join the Glidden Company; Merrill E. Norwood, Columbia River Paper Mills, Vancouver, Washington; A. E. Youngchild, also of Columbia River; and J. H. Varley of the Paraffine Companies, Inc., Emeryville, California.

Four Months Pulp Imports Gain 12.4% Over 1936

Imports of all grades of wood pulp for the first four months of this year totaled 711,200 short tons as compared with 632,828 short tons in the same 1936 period, an increase of 78,372 tons or 12.4 per cent.

Imports of chemical pulp in the first four months totalled 642,313 short tons as compared with 571,623 tons in 1936, an increase of 70,690 tons. Groundwood in 1937 amounted to 68,887 as against 61,205 tons in the first four months of 1936, an increase of 7,682 tons.

April imports followed the usual seasonal trend by declining below the figures for March. April pulp imports totalled 108,625 short tons valued at $5,114,937, according to the U. S. Department of Commerce figures. In March the imports were 151,839 short tons of a declared value of $6,529,732, while in April last year the imports totalled 108,982 tons valued at $4,500,996.

April, 1937, imports dropped 357 tons under April, 1936, but the value increased $613,941 or 13.6 per cent. Imports during April, 1937, were the smallest of any month during the year from April, 1936.

Imports of wood pulp for April, 1937, comprised 37,674 short tons of unbleached sulphite, valued at $1,402,601; 47,326 tons of bleached sulphite valued at $2,672,351; 15,889 tons of unbleached kraft valued at $591,190; 7,054 tons of bleached sulphate valued at $412,330; 626 tons of soda pulp valued at $30,577, and 56 tons of miscellaneous pulp valued at $5,888. Groundwood imports were 19,669 short tons of a value of $363,712 in April.

J. Wallace Tower Dies Suddenly

J. Wallace Tower, partner in Hardy S. Ferguson and Company, consulting engineers of New York, died suddenly in his sleep on the morning of June 21st. Mr. Tower, who was sixty-six years of age, died of a heart attack.

Mr. Tower was born and educated in Holyoke, Massachusetts. He had been associated with Hardy S. Ferguson since 1898 and a partner in the firm since 1928. He participated in the design and construction of a number of the prominent pulp and paper mills in the United States, his most recent work being on the plant of the Crossett Paper Mills at Crossett, Arkansas.

Mr. Tower, a bachelor, was the last surviving member of his family. He was a direct descendant of Richard Warren, a passenger on the Mayflower, and Mr. Tower was a member of the Society of Mayflower Descendants. He was a member of several Masonic lodges and of the National Travel Club. An ardent stamp collector and amateur photographer, Mr. Tower travelled extensively.

Services were held in Holyoke on June 23rd.

Roy Banks Passes in Long Beach

Roy E. Banks, partner with W. C. Fricke in the Long Beach Paper & Notion Company of Long Beach, California, died at his home of a sudden heart attack on July 6th. Mr. Banks was 48 years old.

Don Middlebrook Makes His Debut

A new paper maker has joined the ranks of the Crown Willamette organization in Portland, in the person of Don Gray Middlebrook, age about six weeks.

The new recruit is the young son of Paul Middlebrook, assistant to the vice president, and was born on June 1, an event on which Mr. Middlebrook is still receiving congratulations.

Hammermill Men on Coast

Visitors from Erie on the Pacific Coast in June were several executives of the Hammermill Paper Co. They were M. W. Wilson, vice-president and general manager; D. S. Leslie, assistant general manager; W. F. Bromley, secretary, and W. T. Brust, assistant secretary.

B. C. Exports 93% of News Print

Of British Columbia's annual $8,500,000 production of news print, only seven per cent is used within the province, according to figures issued by the provincial government. Seventeen per cent of the output goes to British Empire countries, chiefly Australia. Seventy-six per cent goes to foreign markets.

Ninety-three per cent of British Columbia's annual production of pulp, valued at approximately $3,000,000, is sold in foreign markets.

Canadian Pulp Exports Up in May

According to Canadian government statistics wood pulp exports amounted to 79,480 short tons in May and the value was $3,682,140. This was an increase of 18,913 tons above the 60,567 tons valued at $2,817,801 exported in April of this year, and a gain of 12,972 tons over the exports of 66,508 tons valued at $2,631,242 in May, 1936.

Canadian shipments of wood pulp to the United States in May of this year were 68,649 tons valued at $3,109,905 compared with 52,091 tons valued at $2,424,380 in April of this year. The United States took more than 86 per cent of all Canadian pulp exports in May.

Certain-Teed Omits Dividend

The Certain-Teed Products Corporation at a director's meeting June 18, omitted its dividend ususally declared at this time, in order to utilize working capital to carry out business expansion. Walter G. Baumhogger, president, stated after directors omitted the dividend on the 6 per cent preferred that the corporation's earnings for the first half of 1937 will be satsfactory to stockholders. Earnings through May, he said, would amount to $128,113, after charges, contrasted with a $227,613 loss in the 1936 period.

Port Mellon Down Temporarily

Shortage of Cargo Space Principal Factor

After operating for six months, Port Mellon Operating Company has suspended pulp operations and will await return of better shipping conditions before reopening.

Closing down this plant which had started out last Christmas Day after years of negotiation, litigation and uncertainty was regarded with widespread disappointment. It had given employment to 265 men and was a valuable industry inasmuch as it was operating a sawmill in conjunction with its kraft plant, eliminating all waste.

Early in July the sawmill resumed cutting on a small scale, with a crew of about thirty men.

"We'll get the pulp mill running again just as soon as conditions improve," said Pat Burns, sales manager at the Vancouver office. "The scarcity of ships and high freights has been one serious factor to contend with; another, has been the slump in the lumber market, and a third has been the difficulty to get export permits through to Japan. The Japanese government is extremely strict just now in paying out money for outside purchases except for strictly essential goods while the present exchange situation persists.

Advances in the Manufacture of Wood Cellulose of High Purity—

And Its Expanding Uses for Rayon, Cellophane, Plastics, Etc.

by R. S. HATCH*

WE hear of many examples of new industries which have been created in the last two or three decades, the effects of which have been most profound upon our social, industrial and economic life. These developments have been entirely the result of orderly scientific and engineering progress and stand out as significant examples of the modern union of science and industry. Developments in the science of radio transmission and reception, modern transportation, plastics, etc., are those which have received the most attention in the popular press. There is still another modern development which has not been so frequently mentioned as such but which perhaps exceeds all of these in importance and is a much more intimate part of our daily lives. I refer to the vast industry which has been built upon the base of our most common and widely distributed raw material, cellulose. This development has taken place entirely during the last half century and some idea of its magnitude would not be out of place in this discussion.

The first successful attempts to produce a synthetic fiber date back to 1894 when Count Hilaire de Chardonnet first produced a synthetic fiber from nitro-cellulose. In 1889, the first commercial samples of Chardonnet's silk were placed on public exhibition. This synthetic fiber business has grown from a few thousand pounds produced in 1900 to 265,000,000 pounds in 1927, 350,000,000 pounds in 1928 and 2,000,000,000 pounds in 1936.

The first successful production of synthetic fiber used natural cotton as its raw material. Following that, produced by the nitro-cellulose process, came the development of the cuprammonium process of Despeisses. This process also used cotton cellulose as its raw material. Then came the development of the viscose process resulting from the experiments conducted by Messrs. Cross & Bevan in England in 1892. This process uses as its raw material specially prepared chemical wood pulp made by the sulphite process. By 1928, 84% of the world's production of synthetic fiber was utilizing sulphite pulp in the viscose process, while 9% of the world's production was made by the Chardonnet process, 5% by the cuprammonium process and 2% by the then comparatively new cellulose acetate process which, up to the present time, has depended upon cotton as its basic raw material.

*Director of Research, Weyerhaeuser Timber Company, Longview, Washington. Presented at the meeting of the Canadian Chemical Society, Vancouver, B. C., June 16-20, 1937.

Rayon Using 100,000 Tons More Wood Pulp Each Year

With the adoption of the generic name "rayon," for synthetic fiber produced from cellulose, in 1924 by a meeting of American Manufacturers of synthetic cellulose fiber, the business grew with tremendous rapidity. In 1935, the world consumption of wood pulp for the manufacture of viscose silk was 520,962 tons, of which the United States consumed 115,112 tons. In 1936, the United States consumption of wood pulp had grown to 165,625 tons. Indications are that the world consumption of wood pulp for the production of synthetic fiber and films is increasing at the rate of 100,000 tons per year and this rate will probably be maintained for at least the next five years. It is thus evident that we are dealing with a vast industry, the size of which is little appreciated by the general public, which is responsible for the employment of thousands of our population and which places in the hands of the ultimate consumer a new product low enough in price to be within the reach of all and a powerful medium for the better enjoyment of life. It is not possible within the brief confines of a paper of this character to trace the entire chemical and mechanical development of the viscose and related processes to their present state of perfection and I shall be obliged to devote most of my discussion to that part of the development which concerns the raw material itself, cellulose.

Paper Cellulose vs. Rayon Cellulose

For many years, prior to the develop ment of the rayon industry, wood pulp made by either the sulphite or sulphate process had been one of the major raw materials for the manufacture of paper and ceaseless investigation has been applied to improving the quality of these chemical wood pulps for paper making purposes. Before the discovery of a successful process for the manufacture of cellulose from wood in 1864, the paper industry depended largely upon cotton cellulose as its raw material. This was used in the form of old cotton rags or new cotton cuttings, a by-product of the garment industry.

With the increasing demand for paper and the consequent increasing shortage of all kinds of cotton rags as raw materials, the paper makers of the world turned enthusiastically to the new chemical cellulose produced from wood and for many years the technical developments in the wood pulp industry were centered exclusively in the production of better material for paper making purposes. The cellulose of the cotton fiber is almost a pure alpha cellulose. Cotton cellulose, when mercerized with 18% of caustic soda and subsequently washed free of the sodium salt, loses very little in weight. On the other hand, wood cellulose is a mixture. Wood, according to species, contains varying amounts of alpha cellulose together with hemi-celluloses, pentosans, lignin, resins and numerous water soluble substances closely allied to cellulose and the sugars. The main purpose of the chemical process for producing wood pulp for paper making purposes is to dissolve out the cementing materials which bind the cellulose fibers together to form the wood structure, leaving as a result of the pulping process a partially purified cellulose which can be utilized for the manufacture of a wide variety of papers the character of which depend, to a large extent, upon the type of purification to which a wood pulp is subjected after the pulping process.

Physical Qualities for Paper

The paper maker is not as much concerned with the chemical constitution of the pulp which he uses as he is with the physical characteristics of the paper which he can make from the particular type of pulp. It has been demonstrated that for some papers certain amounts of hemi-celluloses are desirable and aid in imparting useful properties to the finished product. The paper maker is, therefore, mainly concerned with the physical strength of the cellulose fibre itself and its purity, insofar as it may affect the useful life of the finished product. The manufacturer of synthetic fiber, on the other hand, is more concerned with the chemical properties of the cellulose in wood pulp and is particularly concerned with the uniformity of these chemical properties for on this uniformity depends the quality and uniformity of the finished synthetic fibre yarn.

The business of manufacturing chemical pulp for the synthetic fiber industry is comparatively new but with the rapid

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growth in the consumption of this type of pulp, a large number of mills formerly engaged in the manufacture of pulp for paper making have turned to the manufacture of pulp for the rayon industry and in some cases, entirely new mills have been built for thi purpose or are contemplated. Early in the development of the rayon industry, it became apparent that pulp which was excellently suited for paper making purposes was not at all adaptable to the manufacture of rayon. This, of course, led to an intensive study of the requirements of the rayon industry and the mills who had gone into the manufacture of this type of pulp turned their attention to those technical details of the manufacturing process which would result in the best type of pulp for this purpose.

Chemical Properties for Rayon

In the manufacture of paper pulp a first objective is usually a mechanically strong fiber capable of hydrating comparatively easily in the mechanical beating process with the yield from the original wood substance as high as possible. This means that for many paper making purposes, the pulp manufacturer endeavors to leave in the pulp a comparatively large percentage of hemi-celluloses which in themselves are readily hydrated by mechanical action. This hydration develops a type of formless mucilaginous cellulose which aids in cementing the fibers together to form a strong sheet of paper. In making paper pulp, the pulp manufacturer generally deliberately leaves in a small proportion of the original lignin and depends upon the bleaching process for its removal. The reason being that if he attempts to remove the maximum amount of lignin in the chemical pulping process, the cellulose itself will suffer hydrolysis to some extent with a marked lowering of the pulp yield as well as the lowering of the mechanical strength of the fiber. When pulp manufacturers turned to the manufacture of pulp for rayon, on the other hand, they found it necessary to use a more drastic pulping process which gave a lower lignin content in the unbleached pulp, a lower yield and a lower mechanical fiber strength. Expressed in terms of chlorine requirements for bleaching, a given average paper making pulp in the unbleached condition will have a chlorine bleachability, or chlorine requirement, or 5% to 6% whereas, a pulp made from the same species of wood for rayon purposes will frequently have a chlorine requirement as low as 2¼% with a lowering of the over all yield of unbleached pulp of 3% or 6%. In producing a pulp for paper making purposes the manufacturer endeavors to produce a cellulose with a high cuprammonium viscosity. The rayon manufacturer, on the other hand, is accustomed to a pulp of comparatively low cuprammonium viscosity and is particularly interested in uniformity of viscosity because his aging process is a time-temperature reaction which, on account of manufacturing difficulties, he desires to keep uniform and unless he starts with a pulp of uniform viscosity, the viscosity of his viscose solution, when ready for the spinning machine, will not be uniform.

During the early stage of development of the viscose process, all of the pulp manufactured for this purpose was bleached entirely with calcium hypochlorite. This is entirely an oxidation reaction and is difficult to control because time, temperature and concentration are important factors, both in the removal of the lignin by oxidation and the effect on the final bleached cellulose by hydrolysis. A few years ago, it was found possible to split up the bleaching operation into two main reactions. In the first of these, the residual lignin in the pulp is rendered soluble through direct chlorination and removed by washing. This can be done at low temperature and results in almost no hydrolysis of the cellulose. After the removal of the lignin by washing, the remaining color is bleached by oxidation which requires comparatively little hypochlorite and hydrolysis of the cellulose is largely suppressed. This hypochlorite oxidation is the second main reaction and may be divided into two or more steps with washing after each step to keep, through milder oxidation, the hydrolysis of the cellulose to the minimum.

So far, we have considered the differences between paper making pulps and rayon pulps without consideration of their alpha cellulose content. It has been found that the wood used especially for the manufacture of rayon pulp has some influence on its alpha cellulose content. Assuming that about the same process is used, slow growing woods, such as Eastern spruce, show approximately 85 to 87 per cent alpha cellulose, the balance being beta and gamma cellulose.

Western woods, on the other hand, such as Western hemlock and Western white fir, yield a rayon pulp of 89% to 91% alpha cellulose content. In making viscose, the caustic soda with which the cellulose is first mercerized dissolves out the beta and gamma cellulose and consequently a pulp with low alpha cellulose content gives a lower yield of finished rayon than does one with a higher alpha cellulose content. Some attempts have been made by the pulp manufacturers to remove, by various methods, the bulk of the beta and gamma cellulose. Up to the present time, however, this is not universally done and the rayon manufacturers have standardized on pulp from certain species for their individual plants.

One of the improvements in pulp manufacture for rayon purposes in the near future will probably be the production of a chemical cellulose of high alpha cellulose content and by this, I mean above 96%. Many laboratories are engaged in this work at the present time, and a great improvement in the chemical purity of cellulose for rayon pulps is sure to follow.

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Bleached Sulphate Possibilities

There are certain species of wood, particularly those with high resin content such as the Southern pines, Douglas fir, Jack pine, etc., which do not lend themselves readily to the sulphite pulping process and are generally manufactured by the sulphate process. This process yields a very strong dark brown fiber which is very difficult to bleach but rapid advances are being made in the knowledge and technique of the sulphate process as well as in the bleaching of sulphate pulp which will eventually, I feel sure, make this type of pulp a strong competitor of sulphite pulp for rayon manufacture.

Wood in Acetate Process

Thus far, I have discussed the use of wood pulp for the viscose process. The Chardonnet process has been entirely discontinued. The cuprammonium process is very small compared with the viscose process and is not increasing in volume. On the other hand, the acetate process which produces the so-called celanese of commerce is increasing rapidly. So far, both the cuprammonium and acetate processes have used cotton as a raw material almost exclusively. It is reported that some acetate fibre is being produced in England from wood pulp but to the best of my knowledge, none has been produced in this country.

One of the main difficulties in the use of wood pulp for this process, is the physical form in which it is marketed. Pulp for both paper making and for the viscose process is produced in the form of heavy sheets which are well adapted to both uses. Machinery in the viscose process has been developed for the precise and efficient handling of pulp in sheets and the viscose manufacturers only

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"One of the main difficulties in the use of wood for the acetate process is the physical form in which it is marketed. Pulp for both paper making and for the viscose process is produced in the form of heavy sheets, which are well adapted to both uses . . .

"Wood pulp, to be as successfully acetelated (used in producing cellulose acetate) must also be produced in a form that can be readily penetrated and surrounded by the acetelating solution. It must also be of high alpha cellulose content because the chemicals used for acetelating are expensive and are uselessly consumed in reactions with the hemi-celluloses. A considerable amount of work is now going on with the object in view of producing from wood a pulp of high alpha cellulose content and of a physical form which will acetelate readily."

"The production of a wood pulp for acetelation is by no means a simple task, but when we reflect upon the advances which have been made in the production of chemical cellulose from wood for the rayon industry and the tremendous market which has been built up, we need have little fear of the ultimate successful production of wood pulp for acetelation."

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requirement is that these sheets be uniform in structure and thickness so that they will absorb the mercerizing solution evenly and uniformly. The acetate process is, of course, quite a different matter. Cotton cellulose is readily acetated because of its open fluffy nature. Wood pulp, to be as successfully acetated, must also be produced in a form that can be readily penetrated and surrounded by the acetelating solution. It must also be of high alpha content because the chemicals used for acetelating are expensive and are uselessly consumed in reactions with the hemi-celluloses. A considerable amount of work is now going on with the object of producing from wood a pulp of high alpha cellulose content and of a physical form which will acetelate readily.

Cellulose Plastics

The cellulose plastics industry is much older than the synthetic fiber industry. Cellulose nitrate was first successfully converted into the plastic material known as celluloid in Newark, N. J., in 1869 by J. W. & I. S. Hyatt. Cotton has always been the universal raw material for the production of celluloid and the celluloid industry grew in a few short years into a tremendous business. Celluloid, however, had many disadvantages because of its ready inflammability. With the discovery and the perfection of processes for the manufacture of cellulose acetate, a new field for the use of cellulose was opened up. According to the United States Bureau of Census figures, the production of cellulose nitrate plastic in the United States in 1933 was 11,916,000 pounds. In 1936 it had risen to 16,932,850 pounds, an increase of 42%. The production of cellulose acetate in 1933 was 2,482,111 pounds. In 1936 it had risen to 13,036,497 pounds, an increase in the same period of 405%. These figures are food for serious consideration and point very definitely to the desirability of producing a chemical pulp which will be entirely satisfactory for acetelation. This is by no means a simple task but when we reflect upon the advances which have been made in the production of chemical cellulose from wood for the rayon industry and the tremendous market which has been built up, we need have little fear of the ultimate successful production of wood pulp for acetelation.

Cellulose Ethers

Within the past year, cellulose ethers have begun to appear on the market. These products possess unusually interesting commercial possibilities and we may expect a rapid commercial development in this field. Both cotton and wood pulp have been used for making these products. Here again, the question of chemical purity will probably influence the manufacturer's choice of raw material and any development which will lead to the production of a better cellulose for acetelation should be an equally valuable aid in producing pulp for the manufactuer of cellulose ethers.

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Publishers Accumulate News Print Stocks

News paper publishers are continuing to stock up on news print, an analysis of latest statistics as issued by the Newsprint Association of Canada reveals. This indicates that publishers are attempting to even up purchases during the year, to avoid buying in normal peak months of the year which might result in a newsprint shortage.

In April, stocks of news print held by United States publishers rose to 325,089 tons, or 36 days supply, compared with $237,717 tons, or 28 days supply in April, 1936.

In contrast with the decline in Canadian and Newfoundland over-seas shipments this year, shipments to United States from Canada were up 13.8 per cent in May and up 25 per cent for the five months, while shipments to United States from Newfoundland were up 20.2 per cent and for five months up 35.2 per cent.

European shipments to the United States market, although still a relatively unimportant factor, have shown a substantial increase this year.

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Pulpwood Resources of the Lower Columbia River Region

A Summary of the Forest Service Report Prepared for the War Department, Corps of Engineers, North Pacific Division, for Inclusion in Their Forthcoming Report on the Potential Use of Bonneville Power by the Pulp and Paper Industry

THE marketing of power to be produced at Bonneville Dam is a subject being given careful study by the War Department, Corps of Engineers, North Pacific Division, and the possibilities of the pulp and paper industry as a large power consumer is being thoroughly probed by the army engineers. The detailed reports covering these studies will soon be ready for release.

As a background to the reports dealing with wood-using industries, the U. S. Forest Service has compiled a study of the pulpwood resources of the lower Columbia River area, which is worthy of attention prior to release of the Bonneville report itself. This was prepared in the Portland office of C. J. Buck, regional forester, by Bruce E. Hoffman, senior forester, and W. J. Wakeman, timber expert.

The report contains forest type maps and numerous statistical tables and graphs applying to the textual material, which gives details of the unit divisions discussed, covers the volume of pulp timber available, its economic availability, describes the present pulp industry, the raw material supply in relation to present demands, and the supply in relation to possible expansion of the industry. As soon as released for general circulation, it will be of considerable interest to all concerned in the industry itself.

The forest area covered by the report, and considered economically tributary to lower Columbia River manufacturing points, embraces approximately 13,836,000 acres, of which 10,795,000 acres are in Oregon and 3,041,000 acres are in Washington. As shown by the accompanying map, it is divided into large units based on the logical operating outlets and the established or reasonable means of development in transportation. Of this area 1,692,577 acres, or nearly 12.5 per cent, are covered by pulp timber types, of which approximately half are in high-growing capacity sites and within the zone of easy access. There are also about 1,000,000 acres of these qualifications, in the Douglas fir types in which pulp species make up 25 per cent of the volume.

66% Privately Owned

Of the available ownerships, 66.7 per cent is privately owned, 24 per cent is in National Forests and 9.3 per cent is in other public ownership.

Pacific unit is the most important from the viewpoint of present pulp stands and future pulp timber production, but only about 40,000 acres of private pulp timber are available for purchase, the largest portion being controlled by the Crown Zellerbach interests and the Weyerhaeuser Timber Company.

The Cowlitz unit is largely in Weyerhaeuser ownership. The Lewis River unit contains chiefly silver fir, of excellent quality for pulp, and while at present it is remote, is capable of easy development. The same applies in general to the Skamania unit.

North unit is second in importance to Pacific unit, and although Crown Zellerbach interests have large holdings here, there are extensive areas of other privately owned pulp timber and cutovers available for purchase. The Multnomah unit is relatively unimportant, as is the Hood River unit.

The Clackamas unit, tributary to the Willamette River, contains good pulp timber, over half in private ownership and available for purchase. The Santiam unit is undeveloped from the logging standpoint, and the areas of pulp types are at present considered remote, but considerable private forest land is available for purchase. The South unit timber is available to lower Columbia River points by rail or ocean towing, or by rail and truck from the interior of the unit to the Willamette River. Quality of pulp species is good and the area is well developed for transportation. Private owners hold 77.2 per cent of the area, and the bulk is available for purchase. Pulp timber in the East Lane unit is mostly remote, and will not be a significant factor until other areas have been logged out.

Volume data in the report were prepared from figures of the Forest Survey, with the same utilization standards and conversion factors being used. Basic data are the same as published in PACIFIC PULP & PAPER INDUSTRY for May, 1937 (Review Number).

Segregated by Logging Costs

The report segregates pulp timber stands of the saw-timber size into five zones of economic availability, based on the cost of delivering it in log form to the nearest point on the Columbia, and the Willamette below Oregon City. Costs were estimated on the basis of 1929 wage levels and include all operating costs from stump to and including booming. Stumpage, logging profit, interest, carrying costs, are not included.

Zone 1 includes all timber which can

"The timber resources of the Lower Columbia River Area will support increases in the present rate of consumption of pulp species in proportion to the possible improvement in utilization afforded by additional wood using plants; and in proportion to the rate of progress made in the application of organized forestry management to all forest lands.

"In summarizing the report, three conclusions are drawn:

"1. That if present standards of wood utilization continue indefinitely, the supply of pulp species is sufficient to supply but little more than is now used for pulp, lumber, plywood, etc.;

"2. That if operating practices are improved within ten years so that there is less waste, with utilization comparable to that in Eastern pulpwood operations, and with adequate forestry management, the supply will justify an increase in consumption of about 400,000 cords annually, or greater mill capacity of about 1,000 tons of groundwood pulp or equivalent per day;

"3. If forestry practices are adopted which will bring timber stands reasonably close to their full productive capacity, the potential growing capacity of the area is considered sufficient to ultimately provide a cut of 2,317,000 cords, or an increase equivalent to 2,500 tons of groundwood pulp per day."

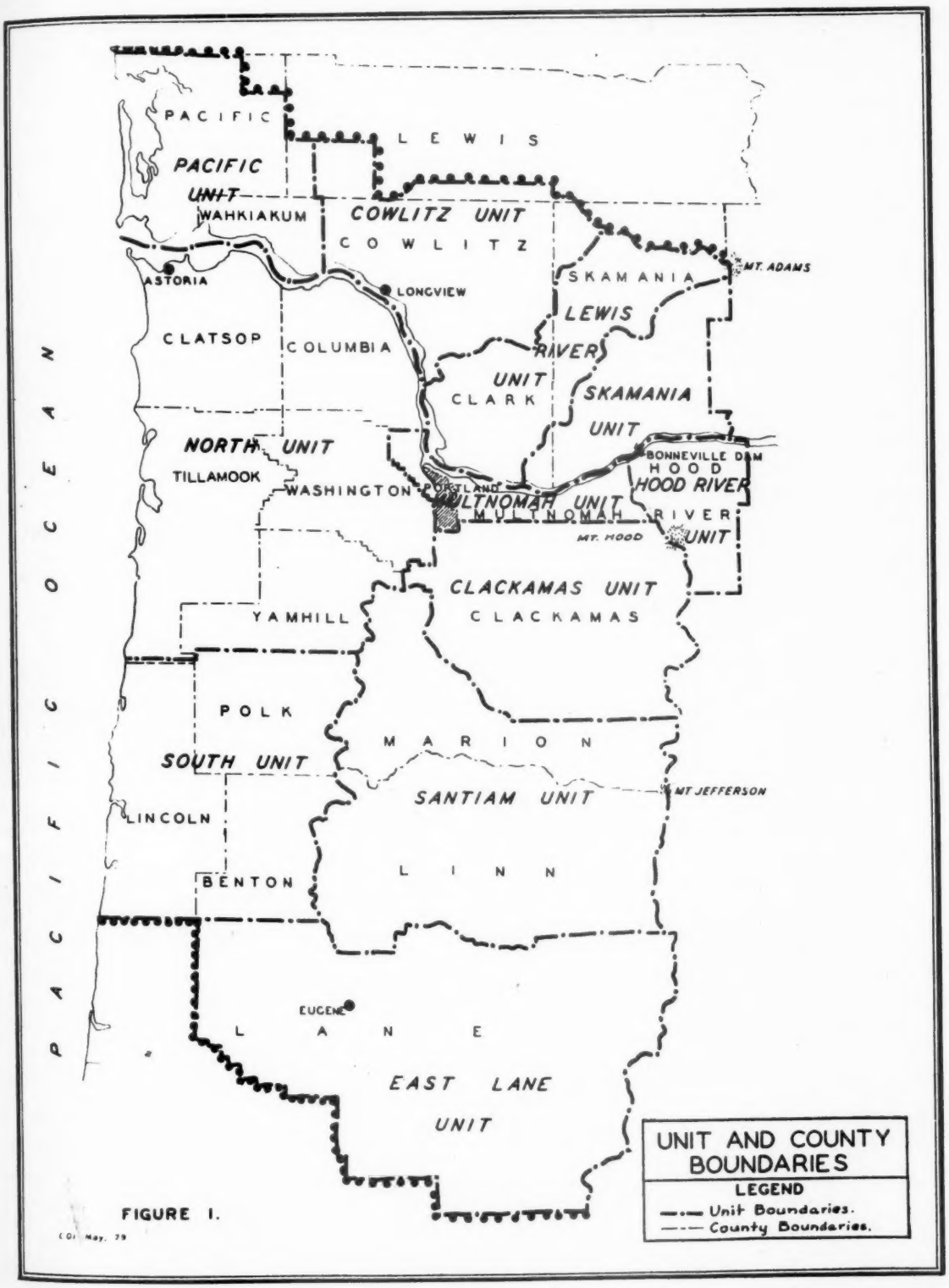


FIGURE 1.

The Large Timber Units Economically Tributary to the Lower Columbia River

be delivered to the river at an average cost of $6.50 per M feet; Zone 2, $8.50; Zone 3, $10.00; Zone 4, $12.50; Zone 5, $14.50.

The study shows that pulpwood costs in this region are substantially lower than in the eastern pulp producing areas. It points out, however, that pulp logs have not so far carried their full share of logging costs, and that present log prices cannot be used as a basis for predicting raw material costs for a long period of time.

Present Pulpwood Consumption

The discussion of the present industry states that at capacity operation, the 12 mills in the area consume 1,070,000 cords or 92,000,000 cu. ft. per year, of which logs form 74 per cent, forest wood 17 per cent, sawmill waste 6 per cent and pulp chips 3 per cent. More than 70 per cent is Western hemlock, 16 per cent balsam fir, 10 per cent Sitka spruce, 3 per cent Douglas fir, and less than 1 per cent black cottonwood.

Table 7

Volume Summary of All Pulp Species and All Classes of Stands, by Units and Ownership; All Trees 4 Inches DBH and Larger (in thousands of cubic feet and thousands of cords)

Units and States	Private		National Forest		Other Public		Total	
	M Cu. Ft.	M Cords	M Cu. Ft.	M Cords	M Cu. Ft.	M Cords	M Cu. Ft.	M Cords
Washington:								
Pacific	2,227,861	21,314	.....	.....	271,586	2,620	2,499,447	23,934
Cowlitz	932,462	9,151	181,228	1,785	218,326	2,167	1,332,016	13,103
Lewis River	134,615	1,260	850,956	8,352	18,894	181	1,004,465	9,793
Skamania	42,505	395	331,762	3,022	7,738	69	382,005	3,436
Total in Washington	3,337,443	32,120	1,363,946	13,159	516,544	5,037	5,217,933	50,316
Oregon:								
North	2,302,712	22,450	105,269	1,044	136,871	1,259	2,544,852	24,753
Multnomah	23,717	203	6,324	61	4,266	41	34,297	305
Hood River	39,303	356	227,298	2,211	2,525	20	269,126	2,587
Clackamas	212,522	2,487	821,297	7,971	16,154	145	1,049,963	10,603
Santiam	834,266	8,244	986,025	9,637	97,542	968	1,917,833	18,849
South	686,780	6,736	95,609	914	148,489	1,448	930,278	9,098
E. Lane	254,958	2,406	638,753	6,036	66,643	621	960,354	9,063
Total in Oregon	4,354,258	42,882	2,880,575	27,874	472,480	4,502	7,707,313	75,258
Total in Area	**7,691,701**	**75,002**	**4,244,521**	**41,033**	**989,024**	**9,539**	**12,925,246**	**125,574**

Table 15

Volume Summary of All Pulp Species in Saw-Timber Stands—16 Inches DBH and Larger*; By Units and Economic Availability Zones; All Ownerships Combined (in thousands of cubic feet and thousands of cords)

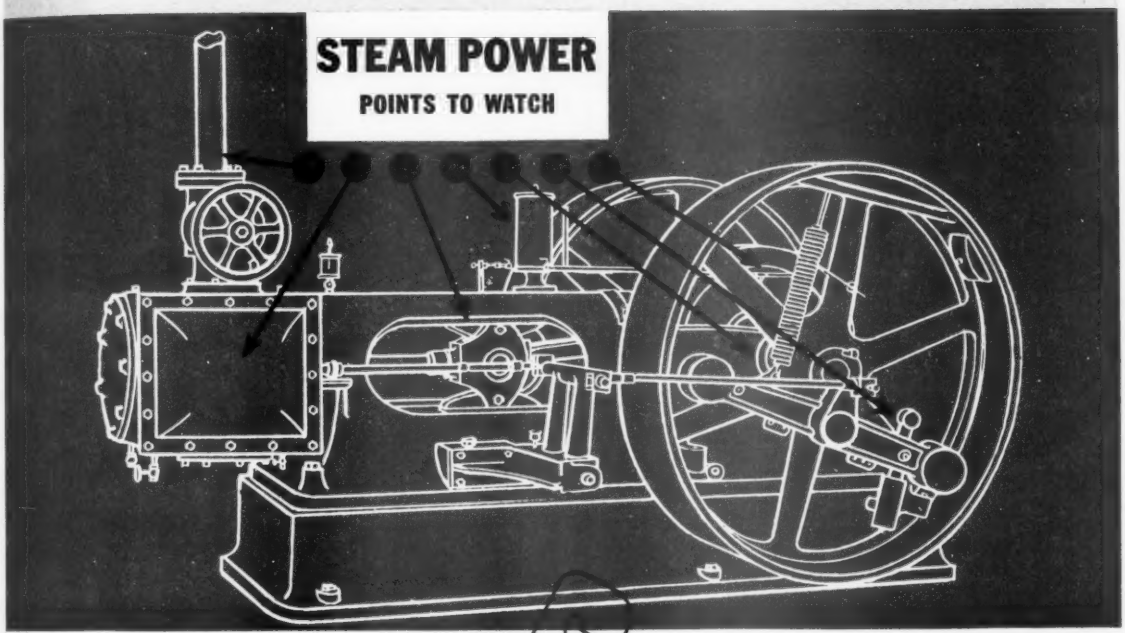
Zone	Volume Units	UNIT Pacific	Cowlitz	Lewis River	Skamania	North	Multnomah
1	M Cu. Ft.	849,681	124,696	1,625	78,657	786,192	5,454
	M Cords	8,670	1,272	16	803	8,022	56
2	M Cu. Ft.	923,580	716,955	43,192	66,094	916,869	9,285
	M Cords	9,424	7,316	441	675	9,356	95
3	M Cu. Ft.	38,221	286,379	291,068	56,020	303,984	.....
	M Cords	390	2,922	2,970	572	3,102	.....
4	M Cu. Ft.	.....	.....	466,366	.....	.....	.....
	M Cords	.....	.....	4,759	.....	.....	.....
5	M Cu. Ft.	.....	.....	.....	.....	.....	.....
	M Cords	.....	.....	.....	.....	.....	.....
Total	**M Cu. Ft.**	**1,811,482**	**1,128,030**	**802,251**	**200,771**	**2,007,045**	**14,739**
	M Cords	**18,484**	**11,510**	**8,186**	**2,050**	**20,480**	**151**

Zone	Volume Units	UNIT Hood River	Clackamas	Santiam	South	E. Lane	Total All Units
1	M Cu. Ft.	21,610	7,151	1,950	.....	.....	1,877,016
	M Cords	221	73	20	.....	.....	19,153
2	M Cu. Ft.	43,740	195,024	537,603	480,112	54,996	3,987,450
	M Cords	446	1,990	5,486	4,899	561	40,689
3	M Cu. Ft.	136,863	274,034	804,603	277,845	348,984	2,618,001
	M Cords	1,397	2,796	8,210	2,835	3,561	28,755
4	M Cu. Ft.	.....	348,049	264,548	.....	178,288	1,257,251
	M Cords	.....	3,552	2,699	.....	1,819	12,829
5	M Cu. Ft.	.....	.....	.....	.....	74,882	74,882
	M Cords	.....	.....	.....	.....	764	764
Total	**M Cu. Ft.**	**202,213**	**824,258**	**1,608,704**	**757,957**	**657,150**	**10,014,600**
	M Cords	**2,064**	**8,411**	**16,415**	**7,734**	**6,705**	**102,190**

*12 inches DBH and larger in black cottonwood.

POWER DEVELOPMENT

ONE OF THE FOUR BASIC SOURCES OF PROFIT LEAKS



ALL of these points are sources of regular *profit leaks*. Failure of any...through power losses, frictional heat, oil wastes . . . can seriously increase operating costs.

Shell engineers have checked such profit leaks by years of study in hundreds of mills and in Shell laboratories. Thus, Shell, with all the resources which comprise Shell's "Invisible Element," can provide highly perfected lubricants for every kind of POWER DEVELOPMENT machinery in saw mills.

Likewise, this "Invisible Element" has developed better lubricants for the varying needs of SPEED CHANGING . . . gear boxes, chains. For your POWER DISTRIBUTION units . . . line shafting. For your POWER OFFTAKE machinery . . . head-rigs, live-rolls, cut-offs, edgers, planers, and others.

To get the full facts about Shell Mill Lubricants phone the nearest Shell office. And if you face a special problem on which Shell laboratories can be of help, write Shell Industrial Lubricants Division, Shell Building, San Francisco.

Shell's "Invisible Element" *is a combination of Shell's unmatched world-wide resources, experience and research. It is the determination to make lubrication more efficient, more economical for you*

Hammond Redwood Co., Samoa, California . . . world's largest single unit redwood mill . . . is one of more than 800 sawmills in the West that rely on Shell's "Invisible Element" to check profit leaks

SHELL MILL LUBRICANTS

FOR POWER DEVELOPMENT SPEED CHANGING POWER DISTRIBUTION POWER OFFTAKE

Table 16

Comparative Costs of Pulpwood Per Cord F.O.B. Mill in Several Pulp Producing States, Years 1925 to 1934, Inclusive

Year	Columbia River District	New York	Pennsylvania	Massachusetts	Maine	Virginia	Wisconsin
1925	$6.50	$19.79	$16.81	$22.96	$18.51	$13.16	$12.58
1926	6.75	19.53	16.85	22.36	17.42	12.72	12.83
1927	6.75	19.34	18.02	19.38	17.16	11.95	12.65
1928	6.25	18.65	17.31	18.98	17.26	11.50	12.95
1929	6.25	19.35	17.43	17.44	16.99	11.04	12.67
1930	5.63	18.60	16.17	17.10	16.48	10.07	12.59
1931	5.50	17.81	15.93	16.00	15.57	8.29	11.83
1932	4.38	15.64	14.36	13.74	13.70	7.74	9.42
1933	4.63	13.33	12.23	11.86	10.50	5.57	8.39
1934	5.50	12.45	12.22	10.37	9.72	6.98	9.34

*For Western Hemlock. In other states cost is for all species.

NOTE: The per cord costs for New York, Pennsylvania, Massachusetts, Maine, Virginia and Wisconsin are from the Bureau of census reports. They represent costs of both coniferous and hardwood species of peeled and split wood.

The costs as shown for the Columbia River District are for Western Hemlock and are based on the yearly average selling price of camp run logs, plus an assumed allowance of $1.00 per cord for converting logs into wood form at the mill. It is assumed that 1000 board feet, commercial log scale, will produce the equivalent of two cords of wood.

Potential Wood Production

Considerable detail is given concerning the amount of sawmill and remanufacturing waste, and logging waste available, but not being used. It is estimated that in this area during 1934 waste of pulp species in lumber manufacture amounted to 6,700,000 cubic feet, or 78,000 cords, in addition to other waste used for pulp. The recent trend has been toward a greater use of logs and smaller use of waste.

In a normal year, logging operations in the area leave about 500,000 cords of sound material as waste in the woods, most of which is Western hemlock. The report recommends greater attention to this source of pulpwood supply.

After old-growth stands have been replaced with new growth, under 75 per cent of normal stocking with good forest management, the area will yield about 2,317,000 cords of pulp species annually, the report states, or about 75 per cent above present consumption. Existing timber supply on lands other than National Forests, is sufficient, given full land productivity and close utilization, to increase consumption of the present 1,342,000 cords of pulp species to about 1,836,000 cords.

Present ownership control of pulp timber stands, and the availability of private pulp timber for acquisition are discussed, as well as sources of independent log supply and competition from lumber manufacturers and others for pulp species logs.

Three Conclusions

In summarizing the report, three conclusions are drawn:

1. That if present standards of woods utilization continue indefinitely, the supply of pulp species is sufficient to supply but little more than is now used for pulp, lumber, plywood, etc.;

2. That if operating practices are improved within ten years so that there is less waste, with utilization comparable to that in Eastern pulpwood operations, and with adequate forestry management, the supply will justify an increase in consumption of about 400,000 cords annually, or greater mill capacity of about 1,000 tons of groundwood or equivalent per day;

3. If forestry practices are adopted which will bring timber stands reasonably near to their full productive capacity, the potential growing capacity of the area is considered sufficient to ultimately provide a cut of 2,317,000 cords, or an increase equivalent to 2,500 tons of groundwood pulp per day.

Put briefly, "The timber resources of the area will support increases in the present rate of consumption of pulp species in proportion to the possible improvement in utilization afforded by additional wood using plants; and in proportion to the rate of progress made in the application of organized forestry management to all forest lands."

Table 18

Log Sales of Pulp Species for Pulpwood and Lumber in Oregon and Washington for the Years 1929, 1930, 1931, 1932, 1933, 1934*

Year and Species	Total Sales**	Total Sales For Pulpwood		Total Sales For Lumber	
1929—	(M Feet)	(M Feet)	(%)	(M Feet)	(%)
Western Hemlock	1,238,279	52,600	4	1,168,637	94
Sitka Spruce	352,152	1,926	0.6	335,961	95
Balsam Firs	15,424	2,262	15	12,825	83
Total	1,605,855	56,788	3.5	1,517,423	94.5
1930—					
Western Hemlock	1,063,684	317,760	30	649,012	61
Sitka Spruce	299,988	35,958	12	238,004	79
Balsam Firs	36,421	2,944	8	11,662	32
Total	1,400,093	356,662	25	898,676	64
1931—					
Western Hemlock	481,074	77,241	16	335,801	70
Sitka Spruce	101,894	19,051	19	43,064	42
Balsam Firs	9,318	2,317	25	1,259	13
Total	592,286	98,609	17	380,124	64
1932—					
Western Hemlock	286,556	161,587	56	115,513	40
Sitka Spruce	120,838	22,967	19	23,184	19
Balsam Firs	9,145	8,364	91	631	7
Total	416,539	192,918	46	139,328	33
1933—					
Western Hemlock	393,738	234,191	59	136,667	35
Sitka Spruce	184,667	62,185	28	44,369	24
Balsam Firs	16,168	14,318	89	1,850	11
Total	594,573	300,694	51	182,886	31
1934—					
Western Hemlock	670,708	500,197	75	144,508	21
Sitka Spruce	148,490	21,844	15	63,777	43
Balsam Firs	27,344	24,189	88	1,006	4
Total	846,542	546,230	64	209,291	25

*Stumpage and log prices. H. B. Steer. U. S. Department of Agriculture Statistical Bulletins Nos. 36, 37, 44, 49 and 51.

**Portions of total sales not included in sales for pulpwood and lumber entered into such items as veneer, cooperage, and shooks.

Table 19

Annual Cutting Budget and Potential Annual Growth of All Pulp Species in Available Ownership, by Units and States (in thousands of cubic feet and thousands of cords)

Units and States	Volume of All Pulp-Species in Saw-Timber Stands 16 Inches DBH and Larger (M Cu. Ft.)	Estimated Possible Present Cutting Budget Under Present Utilization Standards (M Cords)	Estimated Possible Present Cutting Budget Under Close Utilization Standards (M Cords)	Potential Annual Growth of All Pulp Species (M Cu. Ft.)	Potential Annual Growth of All Pulp Species (M Cords)
Washington:					
Pacific	1,811,482	334	445	59,830	486
Cowlitz	1,128,030	164	218	22,070	179
Lewis River	802,251	86	114	14,700	120
Skamania	200,771	18	24	17,000	138
Total in Wash.	3,942,534	602	801	113,600	823
Oregon:					
North	2,007,045	329	438	76,050	618
Multnomah	14,739	2	2	1,700	14
Hood River	202,213	24	32	6,700	54
Clackamas	824,258	88	118	20,100	163
Santiam	1,608,704	162	216	28,760	233
South	757,957	109	145	22,420	183
E. Lane	657,150	63	84	15,800	129
Total in Oregon	6,072,066	777	1,035	171,530	1,394
Total in Area	**10,014,600**	**1,379**	**1,836**	**285,130**	**2,317**

The potential growth represents 75% of the average annual growth in normally stocked Douglas Fir. Yield tables for Douglas Fir were used in making the growth computations. Recent studies indicate that the cubic foot yield of spruce and hemlock will average 30% or more higher than the cubic foot yield of Douglas Fir, hence figures used are conservative.

NOTE: Normal present consumption 1,342M cords (pulp, lumber and export logs). Potential growth would permit of increase in use, equivalent to at least 3,000 tons of groundwood pulp daily.

Eastern Manufacturing Shows Gain

The Eastern Manufacturing Company of Bangor, Maine, producers of rayon grade bleached sulphite pulp and of papers, reports for the five months ending May 31st a net income of $154,328, including subsidiaries, as compared with a net loss of $17,401 for the same period in 1936.

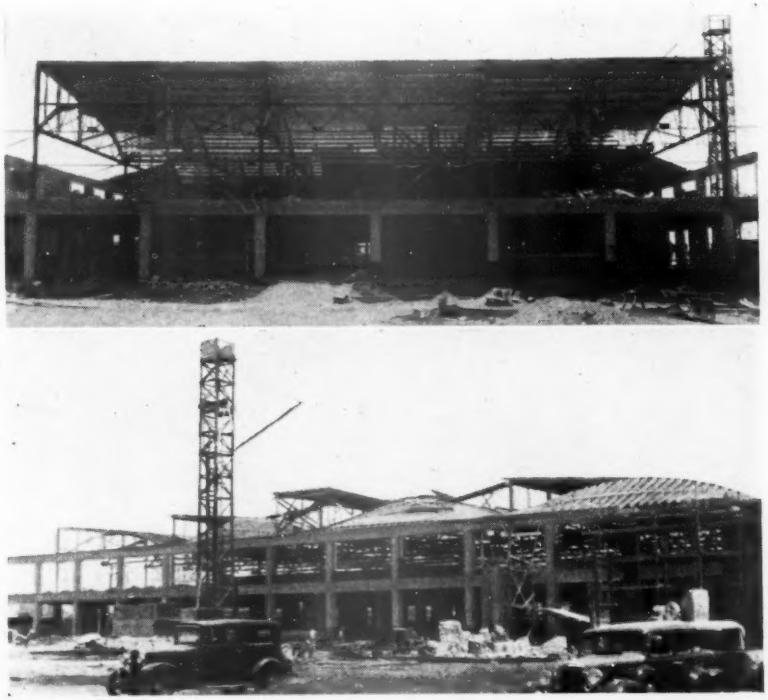
Coordinated Process Control Bristol's New

The Bristol Company of Waterbury, Connecticut, recently announced an advanced step in process control, known as Bristol's System of Coordinated Process Control.

It is a system of completely automatic control for plant processes, whereby all of the technical factors' such as the time of operation of valves (all sizes up to large gate valves), pumps, blowers, dampers, etc., and the control, at a definite value or according to a time program, of such variables as temperature, pressure, liquid level, flow humidity and speed.

These factors affect the uniformity, quality, cost and yield of a product. With the Bristol System they can be coordinated and controlled exactly according to the schedule found by test and experience to be best for over-all results.

The Bristol Company is represented in the Pacific Northwest pulp and paper industry by the Shibley Company of Seattle.



The new Los Angeles bag factory of the Union Bag and Paper Company as it appeared the first of July. It is expected the new plant will be completed early in August.

The Camas Circulating System

Interesting Installation—Said to Be the Largest Single System in the United States

WHAT is generally believed to be the largest installation of digester circulating systems in any one pulp mill in this coutnry, probably the largest in the world, went into operation early this year in the Camas, Washington plant of the Crown Willamette Paper Company, Division of Crown Zellerbach Corp.

There are now eight digesters equipped with circulating systems, producing each day approximately 250 tons of sulphite pulp of the highest quality and uniformity. With the addition of the new 25-ton digester, No. 11, this will soon be raised to about 300 tons per day.

Digester No. 10, a 25-ton unit, was equipped with a circulating system about two and a half years ago, and its performance led to similar installations on seven other digesters. Four of these hold 11½ tons each and three have a capacity of 9½ tons. Only the old No. 6 six-ton digester, now shut down, was not so equipped. Four months were required for the job, including considerable other improvement work on auxiliary piping, steam and condensate lines, etc., without shutting down the plant.

As the mill now stands, it represents the very latest in digester circulating equipment, knowledge and experience.

No. 10 digester was the proving ground for the present set-up, and proved itself despite certain handicaps which the mill will now no longer face. It was necessary to use acid suitable for use with the other non-circulating type digesters, although it did not have the exact characteristics to make the circulating system most efficient, and most economical. It was necessary to develop new digester schedules, new methods of temperature and pressure control, work out an instrument board best suited to the operation. With these and other problems solved, the company was ready to adapt the remainder of the mill to the improved type of operation, and is now in a position to take full advantage of the savings, and increased production and quality made possible by the steam.

The systems at Camas are of course similar in principle to those in use at other mills, consisting of a screen inside the digester to strain the liquor, which is circulated by a special pump through tubes of a steam heater, and back into the digester at the bottom inlet.

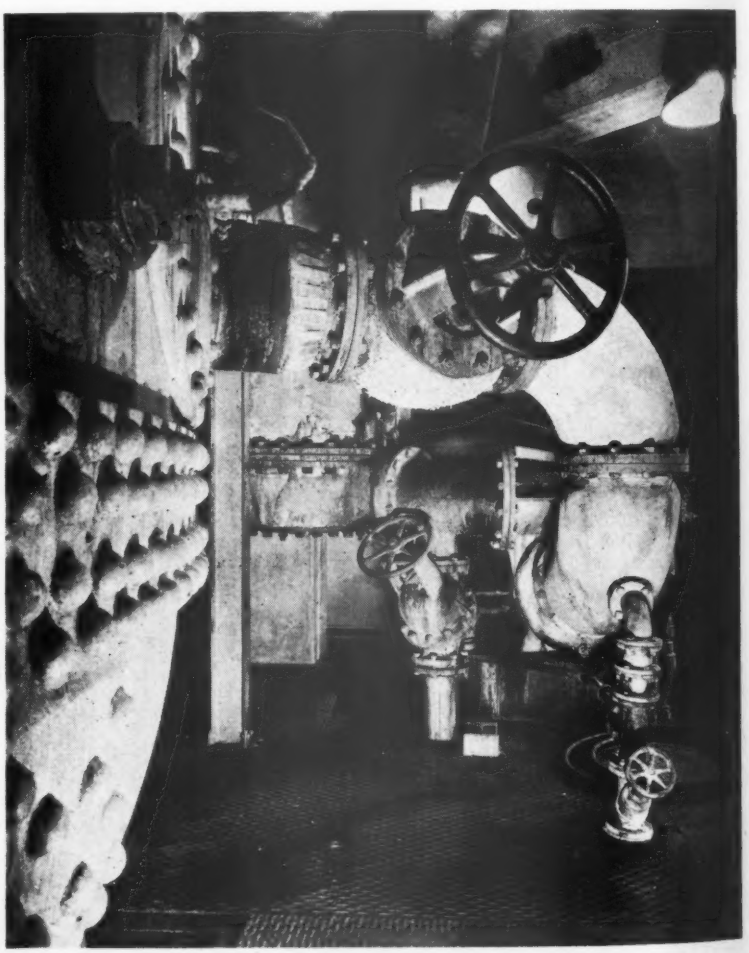
This means that the digesters are indirectly steamed by means of the heater, no direct steam being added. The circulating liquor establishes uniform temperature throughout the digester very quickly and maintains it so, giving greater uniformity to the cook and finished pulp. Digesters are "turned over" every 12 minutes or so, depending on their size.

The system makes it possible to start with an acid of different characteristics than otherwise used, and it remains the same throughout the cook. This improves pulp quality and gives an indirect saving in sulphur in making acid. Better cooking produces a better yield of high quality pulp.

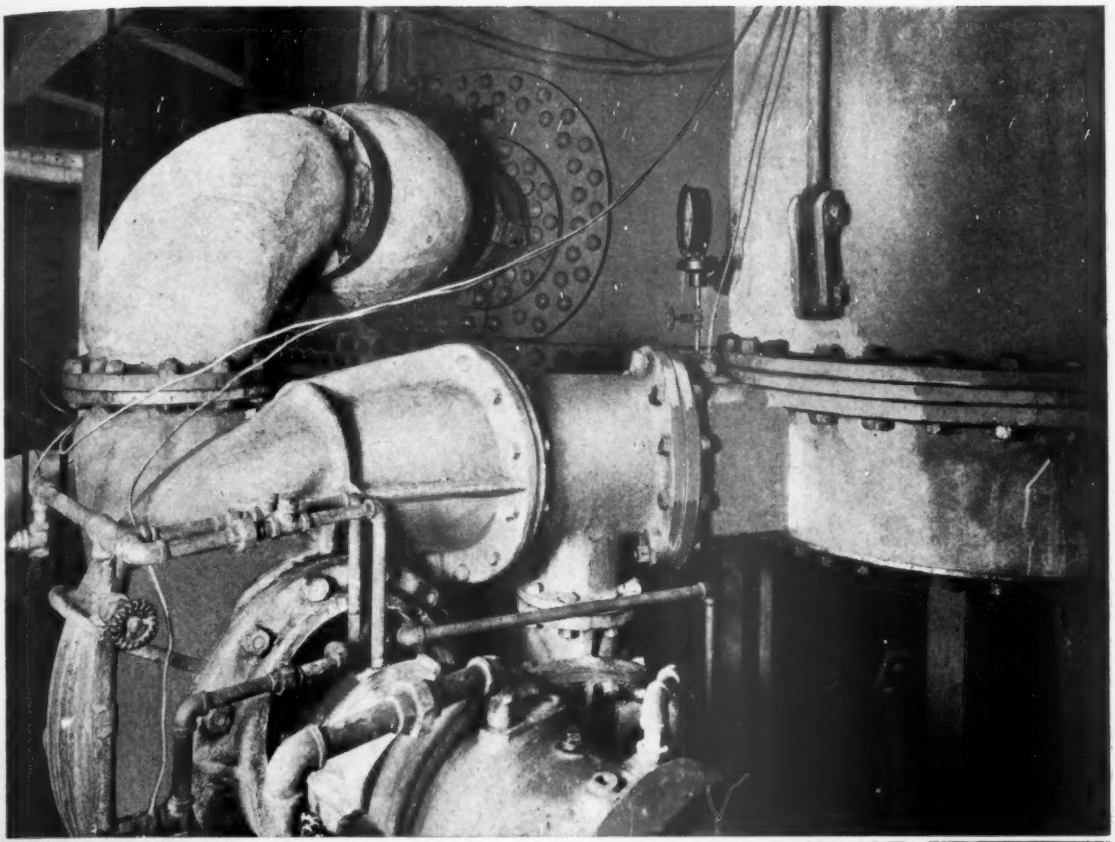
All parts of the system, made by the Electric Steel Foundry Company of Portland, which come into contact with the acid, are made of "Alloy 45," a chrome-nickel molybdenum alloy having all the good essentials of the KA2MO formulae.

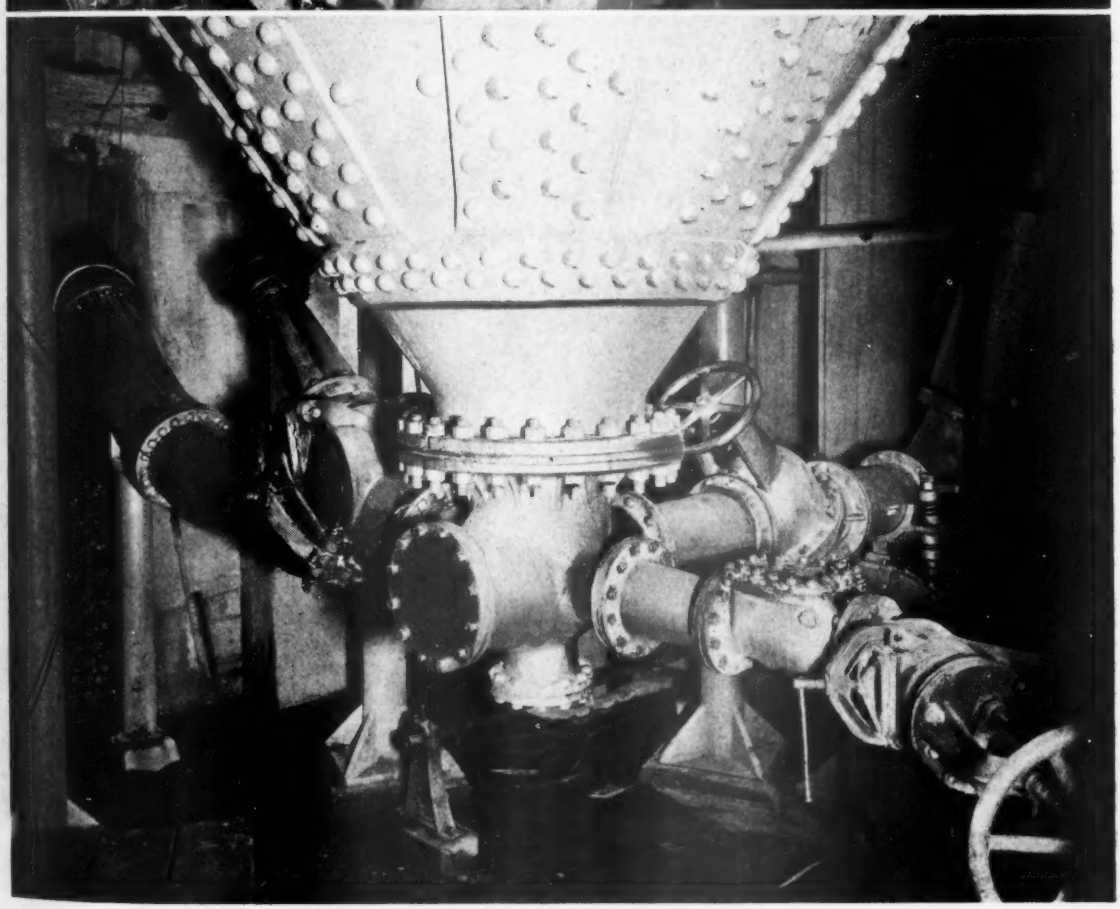
Two-pass heaters are used at Camas, the liquor going down one set of tubes and up another. In this type the tubes are shorter, larger in diameter and fewer in number, which permits easier maintenance. The chief expense in this is in cleaning tubes, the removal of lime deposits which are objectionable.

The piping is all cast, instead of the lighter fabricated piping, and has solid bolted flanges, the very best type of construction. It is carefully laid out with respect to heat expansion. In addition, both pumps and heaters are mounted on carefully calculated spring supports, to prevent strain on important connections and joints.



Three pictures of the Electric Steel Foundry Company's stainless steel pipe, valves and fittings in the Camas circulating system.





The pumps are especially designed for circulating hot liquor under pressure, and have pressure water seals, which maintain a higher water pressure on the sealed packing gland than that of the digester, to prevent any acid leaking out. The pumps are ball bearing equipped and water cooled. Water seal pressure is maintained by outside pressure pumps.

The acid pump on No. 10 digester is driven by a 100 h.p. General Electric motor, while the 11½-ton units have 50 h.p. and the 9½-ton digesters have 40 h.p. These are controlled directly from the instrument board on the top floor at each digester.

The instrument boards constitute an important feature in the close control of the entire process, and were developed through experience with the first installation on No. 10. They give the digester operator complete information concerning the progress of the cook, and provide a permanent record of cooking conditions for each batch.

The instruments, mostly Foxboro equipment, are in most cases recorders. The revolving dial charts are driven by electric clock mechanism, which assures constant speed, and permits starting and stopping the dial chart with each cook, instead of running continuously.

Eeach instrument board includes the following:

1. A Foxboro Flowmeter measuring the steam flow to the acid heater.
2. A liquid level recorder showing the height of the acid in the digester at all times during the cook, expressed in feet below the upper level.
3. A recording pressure controller, controlling digester pressure through the top relief valve.
4. A recording pressure limit control, to show steam pressure in the acid heater, and to avoid any possibility of building up undesirable temperatures in the heat exchanger.
5. A two-pen recording thermometer showing the temperature of the acid entering and leaving the heat exchanger.
6. A single-pen temperature recorder showing digester temperature.
7. An indicating pressure gauge showing digester pressure, equipped with an electric alarm attachment to signal if excessive pressure should build up in the digester.
8. An indicating pressure gauge showing circulation pump gland water pressure.
9. A Westinghouse recording ammeter Type A, recording the load on the motor driving the circulating pump.

On the instrument board for digester No. 10, the recording themometer is a four-pen unit, showing digester temperature at four different points. On direct cook digesters such an instrument shows widely varying temperatures early in the cook and up to a certain point, but with the pilot circulating system on No. 10 the temperatures at different points in the digester proved to be nearly the same practically from the start of the process. Because of this proved uniformity, single-pen recording thermometers were installed on the seven new instrument boards, the single-point reading accurately indicating, for all practical purposes, the temperature throughout the digester.

Each digester is equipped with Foxboro pressure control valve which, in conjunction with the recording controller on the instrument board, automatically relieves digester pressure.

Instrumentation of the new units not only provides very close recorded control of each cook, but makes operation as nearly automatic as is desirable.

Another factor in improved pulp uniformity, quality and yield, is the use of a new Babcock & Wilcox chip distributor, installed by the Chemical Construction Corporation. At this time only one such unit is in use, serving the four 11½-ton digesters, between which it is moved on overhead rails.

The distributor consists of a hopper with a revolving impeller which distributes the chips evenly over the entire surface within the digester, without any coning of the chips. Its purpose is to provide more uniform packing of the digester, with a larger quantity of chips.

The spider and impeller fit in the neck of the digester, in guides which hold the machine in position. The chip hopper contains a motor driven shaft which turns the impeller in the neck of the digester through a ball and socket coupling. Within the hopper a plate revolves, preventing the chips from clogging.

When installing the circulating systems, several important changes were also made in the steam and condensate lines. On the steam line, superheaters have been installed to maintain the steam at optimum temperature and pressure conditions. This is accomplished by an ingenious combination of pressure reducing valves and superheating apparatus, developed by Crown Willamette's electrical and steam engineering staff, with the Electric Steel Foundry Co.

The condensate line is a little different from the usual. Condensate from each individual heater is taken out through a large virtical pipe, controlled by a float control valve, to a common return line that lies horizontal near the floor. This leads to a sump and condensate tank at atmospheric pressure, from which it is returned to the boiler house by hot water pumps. Two of these are installed, one to serve as an auxiliary and stand-by.

In the boiler house is an acidity indicator, to detect any leak of acid in the system, and to prevent damage to boiler house equipment from this source. The instrument is sensitive to one part in 6,000,000. On detecting any measurable acidity in the condensate, the unit sounds an alarm, turns on a warning light, and records the acidity on a chart.

A push-button station, connected to the element of the acidity indicator, enables the operator to cut out each digester in turn, thus locating the digester at fault.

Camas and Lebanon Changes

Construction of No. 11 digester in the Camas, Washington, mill of the Crown Willamette Paper Company, Division of Crown Zellerbach Corporation, got under way about the first of July, and is proceeding according to schedule. The bleach plant is also under construction, and the stock plants for the sulphite mill are practically complete.

One new high speed bag machine recently went into production in the Camas bag plant. This is the second machine of this type in the mill.

A well has been successfully drilled at the Lebanon, Oregon, unit of the company, and is producing 500 gal. per min., for use in cooling the acid system. Water of 53 deg. F. has been obtained.

The chipping plant and screening layout at Lebanon will also be improved with a new chipper disc, spout and hopper, and a new Sumner chip screen. Chip elevators, conveyors, etc., will be completely rebuilt as a part of this program for the general improvement of chip quality.

Stebbins Offers Useful Tables

The Stebbins Engineering and Manufacturing Company of Watertown, New York, Montreal and Seattle, has just issued a most useful booklet which they are offering to men in the pulp and paper or allied industries.

The booklet contains tables giving the capacity of vertical cylindrical tanks per foot of depth, in U. S. and Imperial gallons and in cubic feet from 1 foot to 40 feet in diameter; tables of circles giving circumference in inches or feet and area in square inches or square feet for circles from 1 inch to 100 feet in diameter; tables of spheres, giving diameters by fractions, volumes and areas; tables of spheres with diameters in feet and inches with volume in cubic feet and area in square feet, from 4 feet in diameter to 50 feet in diameter. The final table gives the decimal equivalent of inch and foot fractions.

On the Pacific Coast this booklet may be obtained from A. S. Quinn, Pacific Coast manager, Stebbins Engineering and Manufacturing Company, 1201 Textile Tower, Seattle, Washington.

Ashby of Huyck On Coast

H. M. Ashby, president of F. C. Huyck & Sons, Albany, N. Y., was on the Pacific Coast on a quick trip in June and July. He visited the offices of the Pacific Coast Supply Co., which handle the Huyck line of Kenwood felts. This was Mr. Ashby's first visit to the coast in several years.

Warren Issues Pump Bulletins

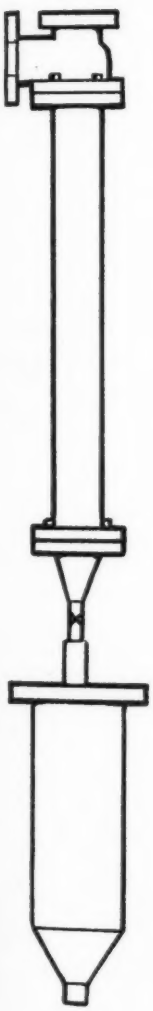
Coincident with the holding of the American Pulp and Paper Mill Superintendents convention at Springfield, Massachusetts, in June, The Warren Steam Pump Company of Warren, Massachusetts, issued three new and informative centrifugal pump bulletins, which are available upon request.

The bulletins cover stock pumps, liquor pumps for handling corrisove liquors and centrifugal machine chest pumps.

Kenneth B. Hall, 219 Pittock Block, Portland Oregon, is Pacific Northwest representative for the Warren Steam Pump Company, Inc.

THE VORTRAP

Removes Virtually All Fine Dirt From Every Type of Pulp



The VORTRAP is an inexpensive device for the removal of GRIT, SAND, SCALE, SAWDUST and General Dirt from all types of pulp.

The VORTRAP is TIME-TESTED . . .

The VORTRAP has THREE YEARS successful pulp and paper mill experience behind it in several Eastern Canadian mills. VORTRAPS are now being installed in a number of American mills including plants on the Pacific Coast.

LOW in COST ... NO MOVING PARTS

The VORTRAP is low in first cost and maintenance is negligible as it has no moving parts. The VORTRAP will quickly pay for itself in YOUR MILL.

Write for Details

Nichols Engineering & Research Corporation
40 WALL ST., NEW YORK, N. Y.

Nichols Engineering & Research Corporation of Canada, Limited
UNIVERSITY TOWER BUILDING
MONTREAL, QUEBEC

Pacific Coast Box Makers Hold Twenty-Third Meeting

Largest Attendance—Fred C. Kewell Succeeds Charles Ruble as President

MEN who produce some nine million dollars worth of paper boxes yearly on the Pacific Coast, largely from Pacific Coast raw materials, held their annual get-together and golf tournament at the Hotel Del Monte June 28-30 and the affair surpassed all records for the past fourteen years in attendance and interest.

The occasion was the twenty-third annual convention of the Pacific Coast Paper Box Manufacturers Association and it was attended by folding and set-up box manufacturers from Los Angeles to Seattle.

Charles Ruble, Standard Paper Box Company, Los Angeles, president of the association, handled the gavel and, at the close of the three days' sessions, turned the honors over to the new 1937-38 president, Fred C. Kewell, Western Paper Box Company, Oakland, whose father, Fred W. Kewell, who was present, is a past-president of the organization. Other new officers elected were: Oscar Bergland, Seattle, vice-president; T. B. Seebaldt, Los Angeles, treasurer and Hugh Peat, San Francisco, general secretary.

Each division has an executive committee and to these bodies were named: Folding: William J. O'Donnell, San Francisco; Richard Schmidt, San Francisco and W. H. Thomas, San Francisco; Set-up: Al Stein, Los Angeles; J. V. Manners, San Francisco, and Earl A. Hincher, Seattle.

There were eight past presidents present. They were Fred W. Kewell, W. H. Thomas, E. L. Stern, R. O. Comstock, Gus Trost, J. L. Norie, C. B. Kerr and William J. O'Donnell.

Seven new members were elected. They were United Paper Box Company, San Francisco; Independent Paper Box Company, Los Angeles; Acme Paper Box Company, San Francisco; Hersee Company, Los Angeles; Hollywood Paper Box Company, Hollywood; Angelus Paper Box Company, Los Angeles and Raisin & Thiebaut Brothers, San Francisco.

Honolulu wants the 1938 convention and William J. O'Donnell, San Francisco, put up his usual campaign for a trip to the islands for the organization. The matter of the next year's meeting place was left to the executive committees and some expressed the thought it might go north, maybe to Victoria, B. C., or to one of the Oregon beach resorts.

San Francisco will hold its world's fair in 1939 and in that year the box people plan a mighty gathering of their clan. The Pacific Coast Paper Box Manufacturers Association will meet there then and also it is hoped that the conventions of the two national box bodies will be at San Francisco in that year. The two national bodies are the National Paper Box Manufacturers Association, composed of the set-up people, and the Folding Paper Box Association of America.

Increased business was reported by all the delegates and, in his address, President Ruble predicted prosperity for the next four or five years but declared there would inevitably follow a slump, maybe as bad as the recent depression. He urged the box makers to take care of themselves now, while conditions are good, and to get equable prices for their products and to work together through their trade associations.

L. M. Simpson, vice-president and general manager, Pioneer Division, The Flintkote Co., Los Angeles, talked on "Real Profits Obtainable Through Association Contacts" and pointed out that group research and development, through associations, can broaden markets and bring in greater profits. He

Pacific Coast Paper Box Makers and their families at the twenty-third annual meeting at Del Monte, California, June 28-30th.

pointed out that the chemical industry showed an average profit of 13 per cent on its investments last year because the members cooperate in development work. The cellophane division of the E. I. Du Pont de Nemours Co., he said, has reduced its prices a number of times in recent years but has made greater net profits because of its research work in developing new uses for cellophane. Mr. Simpson urged a fair attitude toward labor. Labor is going to get a better and a different deal than in the past, he said.

All the papers delivered at the convention were interesting. E. J. Farina of Fibreboard Products, Inc., San Francisco, talked on "General Business Conditions" and presented a series of charts showing the increasing volume of business over the last several years, with 1929 used as a base year for comparison. Strikes along the Coast have retarded recovery in this section but recovery is well on its way. The population of the west is increasing about 25 per cent faster than in any other part of the country, he said, and this fact is bound to assert itself in better business.

Secretary Hugh Peat's report stressed the fact that the new California Unfair Practices Law has been amended with stricter provisions. This act specifically prohibits the selling of commodities below cost. One amendment enables manufacturers to sell to wholesalers at different rates than to retailers. Failure to pay the prevailing wages scale is considered a violation of the act's provisions.

Fred W. Kewell, pioneer president of the Western Paper Box Co., Oakland, spoke on his fifty years in the paper box business, and pointed out that the paper box industry has grown from insignificancy to a spot where it is now recognized as being one of the major industries of the nation.

"Without an association, the many improvements in the method of manufacturing could hardly have been developed and if the operations of members of the industry had not been profitable and collective ideas available, the business could not have developed.

"There have been many changes in the laws, labor conditions, rules, methods and other factors affecting our business," he said. "Many thought years ago that the Workmen's Compensation Act and Women's Minimum Wage Laws would cripple the industry. The same thought applies to practically every new movement today in respect to labor. Several attempts have been made to unionize the paper box industry and today the industry is nearly completely unionized in and around the San Francisco area. Whether we like the condition or not, it is plain that we must adapt ourselves to it. There is no doubt but that it will ultimately improve conditions for all people in the industry."

William J. O'Donnell of the Fleishhacker Paper Box Company, San Francisco, spoke on "Trade Associations of Tomorrow" and said today's problems were changing so rapidly that it would be too costly and too intricate a job for individual manufacturers to try to solve them all. Individual companies should look to their trade associations for help in matters affecting the entire industry.

Theose who attended the twenty-third annual convention of the Pacific Coast Paper Box Manufacturers Association at Del Monte:

Members

STANDARD CARTON CO., Joe O'Reilly, Tacoma; FIBREBOARD PRODUCTS, Inc., E. J. Farina, V. C. Hobbs, Willis H. Thomas, San Francisco; H. A. Campbell, Seattle; O. C. Majors, Los Angeles.

STANDARD PAPER BOX CORPORATION, Charles Ruble, Los Angeles; FLEISHHACKER PAPER BOX CO., Wm. J. O'Donnell, J. V. Manners and G. A. Trost, San Francisco; BOXBOARD PRODUCTS CO., R. J. Gruen-

Charles Ruble, retiring President, congratulates Fred Kewell, the new President of the Pacific Coast Paper Box Makers Assn.

At the left in the front row is Charles Ruble, retiring President of the Pacific Coast Paper Box Manufacturers Association, and at the right, Fred C. Kewell, the new President of the Association.

Cliff Allen, convention secretary at the left, and Hugh Peat, General Secretary of the Pacific Coast Paper Box Manufacturers Assn.

berg, D. H. Sahlein and Max Gurenberg, San Francisco.

SCHMIDT LITHOGRAPH CO., Richard Schmidt, San Francisco; RIDGWAY LITHOGRAPH CO., C. E. Ridgway, Seattle; WESTERN PAPER BOX CO., Fred C. Kewell, Cliff Allen and Fred W. Kewell, Oakland; LOS ANGELES PAPER BOX FACTORY, William H. Kewell and E. L. Stern.

UNION PAPER BOX CO., Oscar Bergland, Seattle; EUREKA PAPER BOX CO., Ed. Sinclair, Los Angeles; UNITED PAPER BOX CO., S. Platt, San Francisco; ACME PAPER BOX CO., A. L. Schooley, San Francisco, and Chas. Minsky, Los Angeles; C. J. SCHMIDT CO., R. O. Comstock, San Francisco.

INDEPENDENT PAPER BOX CO., Roy E. Mullins, Los Angeles; HOLLYWOOD PAPER BOX CO., C. B. Kerr, Hollywood; HERSEE CO., T. B. Seebaldt, Los Angeles; RAISIN & THIEBAUT BROS., L. A. Thiebaut, San Francisco; ANGELUS PAPER CO., A. E. Stein, Los Angeles.

Special Members

PIONEER-FLINTKOTE COMPANY, L. M. Simpson and A. E. Carlson, Los Angeles.

Non-Members

PACIFIC STRAW PAPER & BOARD COMPANY, Harry Springer, San Francisco, and Carl Scott, Longview; SPECIALTY PAPER BOX COMPANY, L. A. Cole, Los Angeles. BOXCRAFT PAPER BOX, Al Coolidge and L. M. Sutter, Oakland.

Supply Men

HARRY W. BRINTNALL COMPANY, H. W. Brintnall, San Francisco; BLAKE, MOFFITT & TOWNE, Walter W. Huelat, Los Angeles; NASHUA GUMMED & COATED PAPER COMPANY, Jas. F. Nields, San Francisco; SCHULKEN BROTHERS, Walter H. Schulken, San Francisco; CALIFORNIA INK COMPANY, Fuller Clarkson, San Francisco; NATIONAL ADHESIVES CORPORATION, A. A. Rose, San Francisco, and M. Waxman, Los Angeles; ZELLERBACH PAPER COMPANY, Sumner C. Caldwell, Frank Stratford and A. Hughes, San Francisco; GEORGE H. MORRILL COMPANY, E. J. Shattuck, San Francisco.

National Officers

FOLDING PAPER BOX ASSOCIATION OF AMERICA, A. E. Murphy, Chicago; NATIONAL PAPER BOX MANUFACTURERS ASSOCIATION, William R. Kreeger, Philadelphia.

Secretaries

PACIFIC COAST PAPER BOX MANUFACTURERS ASSOCIATION, Hugh Peat, San Francisco; SET-UP PAPER BOX ASSOCIATION, Norman Haight, Los Angeles; PAPER BOX INSTITUTE, H. H. Worth, Los Angeles, STEVENSON, GORDAN & HARRISON, R. E. Kimball, San Francisco.

ATTORNEY: J. C. Meyerstein, Pacific Coast Paper Box Manufacturers Association.

Kerr Champion Golfer

Clarence B. Kerr of the Hollywood Paper Box Company of Hollywood, was put into the third flight of the golf tournament at the Pacific Coast Paper Box Manufacturers Association convention at Del Monte in June, but that didn't annoy him a bit, for he went out and won the low net for the fifty-four holes in the three days of medal play and took home the championship and the Boxmakers Perpetual Trophy, which is put up by the association.

Gus Trost of the Fleishhacker Paper Box Company of San Francisco, was chairman of the golf committee and was assisted by B. P. Altick and S. Platt. This group worked out a new system of pari-mutuel betting, in which the delegates bought tickets on the golfers same as fans buy tickets at race tracks. There were prizes for each winner and runner-up in the four flights and for the daily blind bogey. Each player was given a "horsy" name in the pool dope sheet. The winner was dubbed "Sir Ajax" Kerr and his handicap was 18.

Prizes were suitcases and gold sets and golf balls and the like and were donated by the Harry W. Brintnall Company, San Francisco; California Ink Company, San Francisco; Fibreboard Products, Inc., San Francisco; Fleishhacker Paper Box Company, San Francisco; Hampden Glazed Paper Company, Charles Kass, representative, San Francisco; George H. Morrill Company, San Francisco; Nashua Gummed & Coated Paper Company, San Francisco; National Adhesives Corporation, San Francisco; Pacific Straw Paper & Board Company, Longview; Parry Machine Company, Rochester, N. Y.; Pioneer-Flintkote Company, Los Angeles; John T. Robinson Company, Hyde Park, Mass.; Schmidt Lithograph Company, San Francisco, and Standard Paper Box Corp., Los Angeles.

Golf results were:

FIRST FLIGHT

	Gross	Handicap	Net
Winner — Murray Brown	252	45	207
Runner-up — R. C. McCrystal	233	24	209
C. Mattos	255	42	213
W. Schulken	248	33	215
Cliff Allen	270	44	216
R. E. Kimball	264	42	222
W. H. Thomas	270	45	225
Frank Stratford	268	39	229
H. Springer	287	42	245

Daily low net:

June 27—R. C. McCrystal 68
June 28—C. Mattos 69
June 29—M. Brown— 66

SECOND FLIGHT

	Gross	Handicap	Net
Winner—C. E. Ridgway	259	54	205
Runner-up—G. Trost	258	51	207
T. B. Seebaldt	268	51	217
H. Brintnall	266	48	218
J. A. Sweet	266	48	218
W. W. Huelat	270	48	222
L. M. Smpison	273	48	225

Daily low net:

June 27—T. Seebaldt 67
June 28—G. Trost 69
June 29—C. E. Ridgway 63

THIRD FLIGHT

Winner—C. B. Kerr	255	60	195
Runner-up—Al Stein	277	66	211
Cort Majors	285	72	213
J. Nields	293	72	221
R. Schmidt	289	66	223
Charles Ruble	206	72	224
W. F. Schulte	287	60	227
S. Platt	307	75	232
H. A. Campbell	307	66	241

Daily low net:

June 27—R. Schmidt 68
June 28—C. B. Kerr 64
June 29—A. Stein 68

FOURTH FLIGHT

	Gross	Handicap	Net
Winner—A. E. Carlson	312	90	222
Runner-up—L. A. Thiebaut	310	84	226
R. O. Comstock	310	78	232
W. H. Kewell	335	90	245
R. E. Mullins	329	78	251
C. Scott	329	78	251
S. C. Caldwell	341	84	257
J. H. Walker	355	90	265

Daily low net:

June 27—R. O. Comstock 73
June 28—L. A. Thiebaut 69
June 30—A. E. Carlson 63

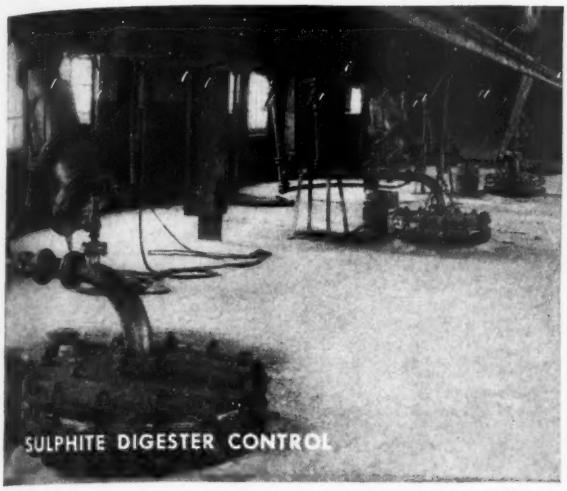
BLIND BOGEY

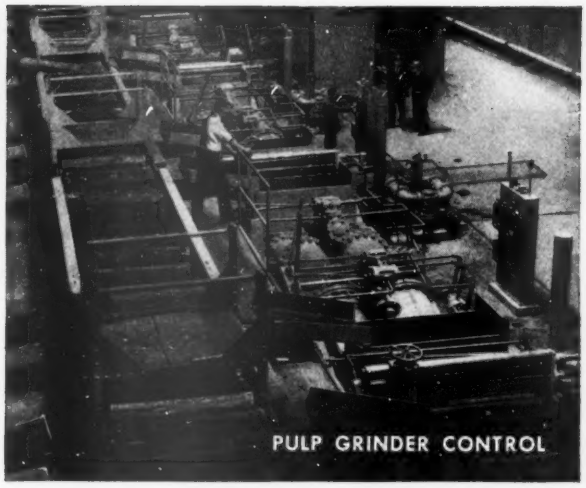
June 27—W. W. Huelat 72
June 28—J. H. Walker 80
June 29—C. Allen 79

Tournament Low Net

C. B. Kerr—195—Wins the Association Cup.

Arthur Carlson, winner of his golf flight, on the left, and Clarence B. Kerr, winner of the overall Boxmakers' Cup.


SULPHITE DIGESTER CONTROL


PULP GRINDER CONTROL

4 PICTURES TO REMIND YOU

OF 4 WAYS TO PRODUCE MORE UNIFORM PULP AND PAPER AT LOWER COST

KEEP this page as a memorandum to yourself. It will show you how to assure more uniform quality pulp and paper—and save money.

For the two most important production units in a mill, Taylor offers: (1) an Automatic Temperature Control for Wood Pulp Grinders; and (2) an Automatic Temperature, Pressure and Time Control for Sulphite Pulp Digesters.

For the stock flow lines, Taylor engineers have developed instruments for recording and helping to control important variables in two of the most important processes: (1) the Taylor Beater-Roll Pressure Recorder; and (2) the Taylor Press-Roll Load Recorder.

Taylor engineers have led the field in development of these installations. Mills in the United States and Canada have proved that Taylor Control will protect pulp and paper uniformity and quality, speed up production and save considerable in per ton costs.

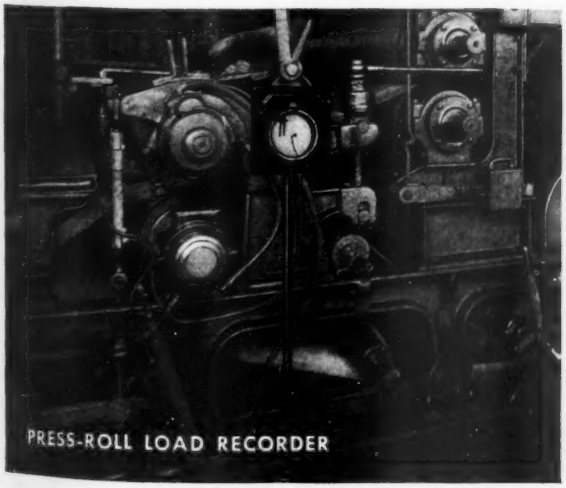
Ask a Taylor Representative about these applications. See how they can be adapted to your mill's specific problems. Taylor Instrument Companies, Rochester, N. Y. Plant also in Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

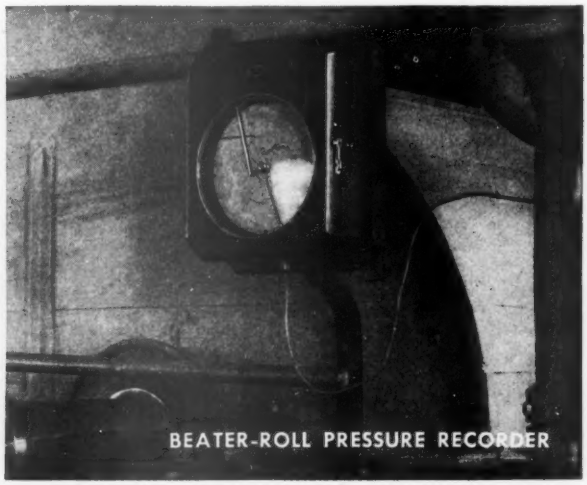
Pacific Coast Sales Offices—145 Mission St., San Francisco, Cal., and Central Bldg., Los Angeles. Also, Terminal Sales Bldg., Portland, Oregon. Complete repair facilities for all Taylor Instruments are available in San Francisco. For your own protection, let adjustments or repairs to your Taylor instruments be made by Taylor.

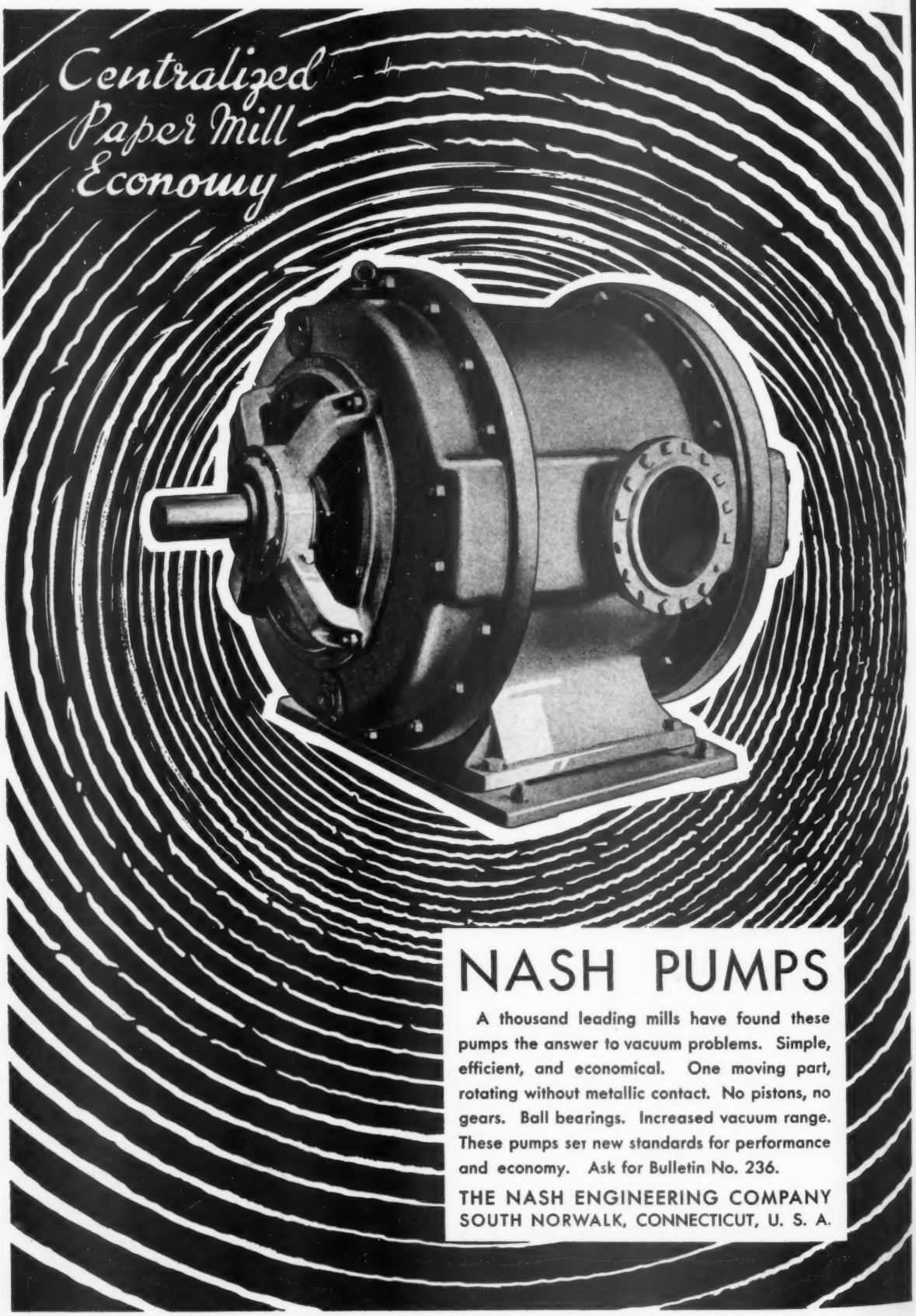
Taylor

Indicating Recording Controlling

TEMPERATURE, PRESSURE *and* FLOW INSTRUMENTS


PRESS-ROLL LOAD RECORDER


BEATER-ROLL PRESSURE RECORDER



NASH PUMPS

A thousand leading mills have found these pumps the answer to vacuum problems. Simple, efficient, and economical. One moving part, rotating without metallic contact. No pistons, no gears. Ball bearings. Increased vacuum range. These pumps set new standards for performance and economy. Ask for Bulletin No. 236.

THE NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

Taylor's New Lever Motor

Many a reader has thought of numerous other uses to which pneumatically operated lever motors could be put if only they were not so restricted by their non-uniform operating characteristics. "At long last," there is a new lever motor on the market which is reported to have been designed and constructed specifically to overcome the traditional shortcomings of this type of device, giving it a much broader field of application.

This new product, manufactured by the Taylor Instrument Companies, Rochester, New York, is known as the Motosteel Evenaction Lever Motor. Its outstanding features include:

All-steel welded construction—same as the recently announced Motosteel Diaphragm Valve—for maximum strength, lightness of weight, and permanency of alignment.

Precision operation characteristics which insure a uniform relation between the air pressure applied to its diaphragm motor and the resulting lever travel throughout its stroke.

Practically free from hysteresis: A deeper diaphragm with larger area gives greater power and smoothly modulated action. Ball bearing roller bearings guide the full stroke of the push rod. The lever is pivoted in phosphor-bronze bushings which are alignment-reamed in same manner as automobile engine bearings.

A number of take-off holes are provided throughout the length of the lever so that the force or travel of the motor may be adjusted.

Power of either up-stroke or down-stroke can be increased or decreased by spring adjusting nut.

The lever action can be reversed by substituting another lever and transposing the fixed and movable pivots.

Limit stops are provided for both up-stroke and down-stroke.

Base is drilled for mounting on floor, wall or ceiling, making possible an infinite number of mounting positions. Works equally well in all positions.

Three sizes of lever motors; in terms of maximum damper areas which can be accurately positioned—25 sq. ft., 50 sq. ft., 120 sq. ft. When the Taylor Valv-Precisor or Dubl-Response Control Unit is operated in conjunction with any of these three motors, these damper areas may be increased appreciably.

May be operated by remote manual control, by an electro-pneumatic switch, or by a pneumatically operated controller. It also may be operated in parallel with a diaphragm valve or other pneumatic equipment, if desired.

These design and operating features recommend this new lever motor for the operation of dampers, lever operated valves, butterfly valves, electrical rheostat for variable speed motors, for the control of electrical equipment, or for the operation of any device by the conversion of pneumatic energy to linear or angular mechanical motion.

May Expand German Pulp Production

Germany's production of wood pulp is destined to undergo considerable expansion in the future as indicated by the fact that in the last several years a number of new plants have been constructed. Nearly all of the output of chemical pulp up to the present time has consisted of sulphite pulp. At present about 5 per cent of the national output consists of straw pulp. Soda pulp also has been produced on a very small scale but a considerably increased output is planned for the near future.

Consumption of cellulose by the rayon and cellwool (staple fiber) industries has increased markedly in recent times, and in 1936 amounted to over 100,000 metric tons, compared with only around 30,000 in 1929. The chemical industry, including such branches as plastics, films, cellulose lacquers, cellophane, artificial leather and explosives, consumed upwards of 20,000 metric tons in 1936. Consumption by these chemical branches and the viscose fiber industries, thus accounted for around 10 per cent of the total wood-pulp consumption in 1936, or a considerably higher share than the average for other important consuming countries. A further market expansion of consumption for non-paper manufacturing purposes is expected in the future, due especially to the marked expansion of cellwool productive capacity now in progress, consumption for cellwool manufacture alone being expected to equal around 15 per cent of total requirements of the paper industry, by the end of 1937. (Consul Sydney B. Redecker, Frankfort-on-Main.)

Missing Radium Found at Sumner

Recently a tiny, inch-long tube of radium, missing from a Seattle doctor's office for nearly two months, was found in a waste dump at the Fibreboard Products, Incorporated, mill at Sumner, Washington.

The tube of radium, valued at $3,000 had been accidentally brushed into a waste basket and eventually found its way to Sumner with waste paper used in making cheap board. The mill's junk remover had taken it out so no customer of Fibreboard received a piece of boxboard worth $3,000.

An intensive search was conducted which led to the employment of J. E. Rose physicist for the Swedish Hospital in Seattle by an insurance company. Mr. Rose employed an electroscope in his detective work. A search of Seattle refuse dumps brought no results, but when the electroscope was placed alongside the junk remover at Sumner it showed radioactivity. To the searchers that indicated the radium had passed that way and the device was moved to the mill's refuse dump where the actions of the electroscope indicated the radium tube's prescence. Several hours of digging brought forth the tiny tube which was restored to its owner.

Morris with James Brinkley Company

Douglas C. Morris is now with the James Brinkley Company of Seattle in a sales engineering capacity. Mr. Morris came to Seattle from Yakima where he had eleven years experience as assistant manager in charge of manufacturing and sales for the old Northwest Brogdex Company, manufacturers of fruit warehouse equipment.

He is continuing his same line of engineering and sales work with the James Brinkley Company, handling machinery sales and installation work.

The James Brinkley Company, of which James Brinkley, well-known Seattle engineer is president, specializes in the preparation of engineering layouts for the handling and conveying of materials. The company has done much work along this line for the pulp and paper industry.

Recently the company appointed agents for the agitator equipment of the Pulp Bleaching Corporation of Orange, New Jersey. Mr. Brinkley has been active in Pacific Coast machinery engineering and sales work since 1913.

MacKay to Handle Taylor Line in B. C.

T. W. MacKay has been transferred to Vancouver, B. C. after twelve years of sales work in Winnipeg for the Taylor Instrument Companies of Canada, Limited.

Mr. MacKay has charge of Taylor sales throughout British Columbia. His address is care of F. E. Dines, 538 Clinton Street, Vancouver, B. C.

On the American side L. H. Wear, with headquarters in the Terminal Sales Building, Portland, Oregon, has charge of sales and service work for the Taylor Instrument Companies in the Pacific Northwest. Mr. Wear's work is directed by George H. Linsley, Pacific Coast manager in San Francisco, where Taylor maintains a modern repair laboratory.

T. W. MacKAY
Taylor in British Columbia

Low Voltage Hazards in Industry

by J. ROSEVEAR*

Pronounced hazards may be found in industrial wiring for light, usually 110 volts, and power, usually 220 volts. The discussion of hazards is confined to these voltages. This paper does not propose rules as bases for an electrical code, but does point out some common hazards and ways to correct them.

THE average individual forgets the danger of lighting equipment and electrical appliances, because of their widespread use in the home. Nearly everyone at some time has received a slight shock without any ill effects. Under some conditions these shocks become extremely dangerous, and death has occurred in many instances. The amount of shock received is dependent on the contact made and through what part of the body the current has to travel. Contacts between the hand and the arm are not as dangerous as between both hands as then the current must pass through body in the region of the heart. Contacts at both wrists instead of both hands are even more dangerous as the callous skin of the hands has more resistance than the wrists. A person who is perspiring and skin is somewhat damp, will receive a much more severe shock than if his skin is dry. Individual persons react differently to shock; what might give you or me a nasty shock might kill another person. Low voltage shock produces a muscular spasm, and if enough current flows it will cause coagulation of the blood and resultant death.

Two Types of Hazards

Let us first classify the types of hazards there are. I believe we may divide these into two (2) distinct classes, the visible hazards of those hazards that may be seen at glance and the invisible hazards or those that may be present but cannot be seen.

The visible hazards are found in exposed wiring, portable cords, broken lighting sockets, untaped terminals on motors and transformers, open knife switches and portable lamp equipment without lamp guards.

How many times is open or exposed wiring found on the walls and ceilings of a plant? This is often permitted and at the time of installation is probably safe, but after a long period of time the insulation deteriorates. It is particularly hazardous as a slight mechanical injury may expose the bare copper conductors and any person may receive a shock if he comes in contact with it.

Portable cords are made to withstand a more severe service than wires in conduit. They must stand considerable flexing and kinking. Ordinarily twisted lamp cord should never be used under any circumstances for this purpose. Portable lamp cords are made with an additional braiding or an outer covering of high grade rubber, and in several grades for different types of work. The rubber covered is recommended for boilers, tanks, and service in damp places. Cords should be inspected frequently for poor insulation, and mechanical injury. Use the right cord in the right place.

Sockets Important

The type of lamp socket to be used with these cords is far more important than the cord itself. This is really the business end and is the part that is handled most by the person using it. The use of brass sockets for this purpose is open to severe criticism, and is an especially dangerous practice where used in tanks or other grounded locations. Ordinarily these sockets are not alive but they may become so from frayed wires where they enter the socket through the shell or from mechanical injury. The best type of holder is one made of dried, treated, wood, or other insulating material; the lamp socket should be so arranged that it does not project outside of handle and all connections should be made below the socket in the base of the handle.

A metal or non-metallic guard should be placed over the lamp to prevent breakage, and must not fasten to the socket itself but to the handle. The danger involved is that the lamp may break, causing it to arc, and a great possibility that the lead wires will short circuit. Then again the lead wires are exposed and if the fuse does not blow the man is exposed to the live ends. Usually he thinks that if the lamp is broken so is the circuit and becomes careless at once. Porcelain sockets and weather-proof sockets are sometimes used for this purpose, and are practical where extreme care is exercised, but human nature being what it is, it is just as easy to use something that is fool-proof.

32-Volt Lamps Used

It is recommended by the National Electric code that portable lamps in hazardous locations be of the 32-volt type and used with a step-down transformer. Extension lamps are sometimes used in an explosive atmosphere and near inflammable liquids. It is particularly important that these lamp holders be designed for this service. They should preferably be made of micarta, bakelite or some other such material and so arranged that the cord is moulded into the holder, a vapor proof globe fitted over the lamp, and non-ferrous guard over the globe. This is done to prevent a spark igniting the vapor or liquid should the holder be dropped on a metallic object near it.

How many times have you seen a workman use an ordinary lamp socket for a source of power for his electric drill or other portable electric tools. These sockets are not designed for this service and are often overloaded and short circuited. The strain of the weight of the portable cord and its flexing may break the bodies of the sockets. Years ago outlet receptacles were made with a screw socket built in similar to a lamp socket, before the days of the T-slot receptacles. Most of these were left uncovered; if you have any of these either replace them with the T-slot receptacle or provide adequate covers so that live parts will not be exposed.

Exposed Terminals Dangerous

Another hazard of considerable importance is the exposed terminals on transformers, motors and rheostats, especially in apparatus of less recent manufacture but still in service. It seems that the manufacturers at that time did not consider it important but have realized the importance in recent years and have provided suitable protection. How easy it is for a workman to touch these exposed terminals, and receive a severe shock or drop a metal tool on these terminals causing short circuit and damage the apparatus or completely shut it down as in the following case. A painter was working in a power house, painting the wall back of the switchboard. There was at least eight feet clearance between the wall and the 200-volt copper busses. He had been cautioned to stay away from the bus and not touch it under any circumstances. The bus ran parallel to the wall at a height of about four feet. He had almost completed this area when he decided he wanted to put the gallon can of paint down, which was about one-third full. Without thinking he put the can on top of both busses, which were capable of carrying 1000 k.v.a. at 220 volts, and many times that for a short circuit period. You can imagine the results. There was a flash, a report like an explosion, the paint disappeared, the can melted. Miraculously nobody was hurt.

Still another accident happened to an electrician who was working on a panel board. He had taken the front casing, including the doors, from a power panel to pull in some wire for another circuit. The barriers were left in place between the live parts of the panel and the gutter where the wires are pulled in. To pull in these wires through the conduit the electrician was using a steel "snake" or "fish" tape which is a very stiff piece of flat steel wire. The power system had a grounded neutral mid-tap. As he was pulling this "snake," he was coiling it up at the same time. After he had coiled about twenty feet of this wire, the rest remained in the conduit. The end of the "snake" slipped out of his hand, uncoiled itself, and hit the live parts of the power panel. As this was a dead short circuit the "snake" became immediately red hot causing severe burns to his hand but no shock occurred as he was practically at ground potential.

Avoid Open Knife Switches

Open knife switches used to make and break circuits, unless in a power house under a competent operator, should be enclosed in a protecting cabinet. However, today there are so many good safety switches on the market that are totally enclosed and operated from the outside by a handle, that there should be no excuse for the continued use of knife switches for this service.

Next let us consider the invisible haz-

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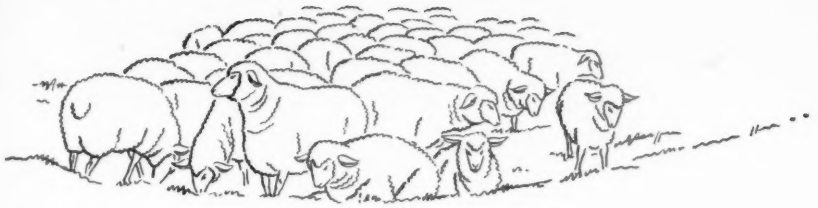
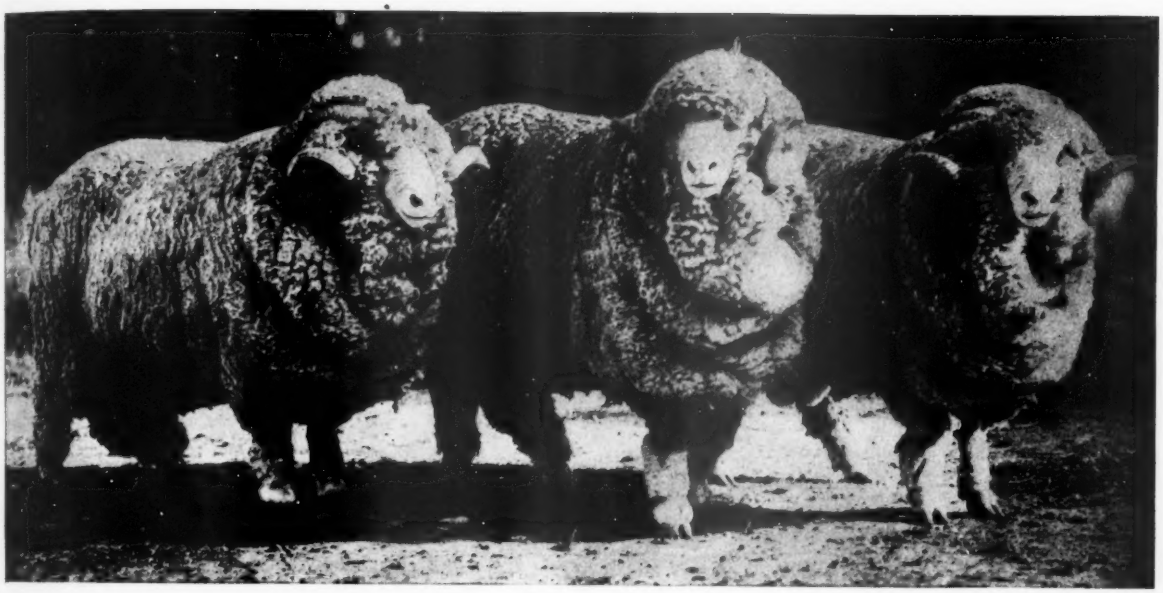
* Assistant Plant Engineer, Westinghouse Lamp Division, Bloomfield, New Jersey. Presented before the New Jersey Chapter of the American Society of Safety Engineers.



KENWOOD FELTS ON THE HOOF



As the largest manufacturer of Papermakers' Felts in the world, Kenwood is constantly searching world-markets for wools of a texture and quality acceptable for manufacture into Kenwood Felts. Such wools are rarer, more costly, than the wools required for the finest woolen fabrics. From Australia, New Zealand, Scotland, England, South Africa, the Argentine . . . Kenwood gathers these carefully selected types of wool, stores them in its great warehouses—often more than two million pounds at one time. From this vast assortment, Kenwood is able to select exactly the types and grades of wool required for each variety of felt, and to blend them with expert knowledge of the precise tasks they must later perform when woven into Kenwood Felts.

KENWOOD
WOOL PRODUCTS

F. C. HUYCK & SONS

ALBANY, N. Y.

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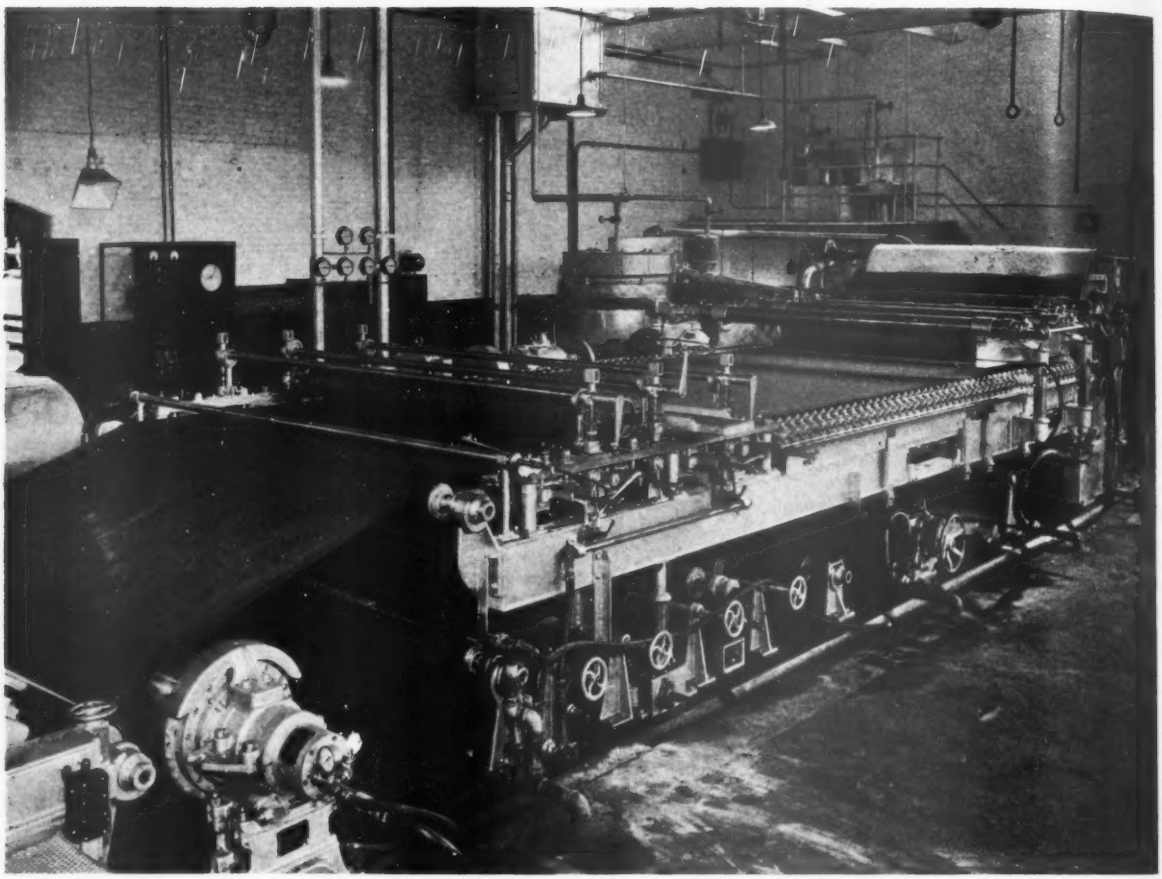


Formation Control Simplex Feature

on recent Smith Paper Machine Installation

● THE SIMPLEX Fourdrinier shown is the forming end of a machine recently installed at Smith Paper, Inc., designed and built by the Bagley and Sewall Company. The wire is sixty feet long and ninety-five inches wide.

The Fourdrinier is arranged to operate with two enclosed type SIMPLEX Shaking Units, which give the desired control of the shake at two different points along the forming table.

An interesting feature of this Fourdrinier is the means for providing adjustment to the pitch of the wire, which may be varied up or down while the machine is in operation. Changing the pitch of the wire does not necessitate changes in slice or apron board position.

The table rolls are fitted with bearings of the eccentric type by which means any individual roll may be lowered clear of wire contact as desired.

THE BAGLEY AND SEWALL COMPANY

WATERTOWN, NEW YORK

SIMPLEX FOURDRINIERS • SIMPLEX ADJUSTABLE SHAKES

ards. They are electrical distribution systems that are not grounded; balance coil circuits obtaining 110-volt lighting from 220-volt power circuits; overfusing of circuits; improper grounding of both permanent equipment and electric tools and portable lamps for specially hazardous locations.

Grounded System Best

The electrical distribution systems, or network systems as they are called, are of two classes, those that are grounded on the secondary 220-110-volt side and those that are not so grounded. Neither one of these systems is infallible; the grounded system with a grounded neutral wire is preferred. This system reduces the voltage strain between the conductors and ground nearly in half, depending on whether it is a two phase or three phase system. All lighting circuits may then be polarized so that the shell of the socket is at ground potential and any one touching this part of the circuit would not receive a shock. This type of wiring must use as the neutral conductor a wire having a white covering to be used for identification. Otherwise the advantages gained would be lost. Another characteristic of this network is that when a wire is grounded it immediately blows a fuse on the branch circuit; the ground must be cleared or the fuses will blow as fast as they are put in.

Many of the older types of distribution systems do not have a grounded secondary neutral. Let us see what would happen if a ground should develop on one side of the 220-volt line. Nothing as far as anybody could see, probably nobody would know it unless they should check the line for grounds. Should anyone accidentally touch the other side of the line he would receive a shock of 220 volts instead of 110 volts; there is quite a difference. On this type of distribution system if no grounds are present, one may touch either conductor separately and receive no shock. This breeds contempt for the danger or shock, and when a ground does occur a serious accident may develop. You may say, find the ground at once and clear it; that is not as easy as it sounds, as the ground may be reflected throughout the entire distribution system.

Equipment Should Be Grounded

It is necessary to mention the grounding of permanent and portable equipment, in distinction to the electrical distribution system. All equipment, such as motors, starters, machine shop equipment or any other equipment that is connected to or attached to an electrical device should be grounded. This applies to any metallic equipment that would conduct electricity, and of course does not apply to any material that would not as an insulator, such as wood, rubber and glass. The frame of all such equipment should be connected with a suitable ground wire to a permanent ground. This protects the operator as the machine is then at ground potential.

The following near accident is typical when this rule is disobeyed. A qualified electrician attempted to drill a hole in a pipe hanger in the ceiling. He placed his step ladder in position, plugged in the electric drill in an outlet but forgot to attach the ground clip which was provided to clamp to the conduit at the outlet. Then he climbed the ladder, grasped the overhead piping for support with one hand, the drill in the other. Turning on the switch to see if the drill would operate, he received a severe shock, strong enough to upset his balance on the ladder. Fortunately he was able to let go of the drill as the ladder toppled over and grasp the piping for support. His calls were heard and the ladder was replaced, to permit him to come down to the floor. What had happened? The electric drill had developed a ground in the field coils so that as soon as the switch was turned on the electrician received a shock, one side of the line being connected to his right hand and the grounded pipe in his other hand. How could this have been prevented? If he had used the ground clip it would have blown a fuse at once and he could not have operated the drill until it had been fixed.

Don't Over-Fuse

Overfusing of lighting or power circuits is a common practice even among qualified electricians. A fuse is the safety valve in an electrical circuit and opens the circuit whenever an overload or short circuit occurs. Three types of fuses are used in low voltage circuits, the plug fuse, cartridge fuse and knife blade type. The plug fuse is used in circuits up to 30 amperes, the cartridge fuse up to 60 amperes and the knife blade type above the 60-ampere fuses. At times when circuits become overloaded and blow the fuse, instead of removing the trouble, the electrician will reinforce the fuse, with the intention of fixing it at a later date. Most of the time his memory is short and it remains as it was . How can these fuses be reinforced? Very easily. Pennies, washers, etc., are placed under plug fuses, pieces of brass tubing are substituted for cartridge fuses and pieces of flat copper for knife fuses. These fuses are generally contained in a cabinet with a door to prevent entrance to the workman and are very well concealed from the average individual. A careful inspection of the power panels and lighting cabinets will reveal these violations.

Modern tamper proof automatic circuit breakers for distribution circuits avoid many of the hazards common to fused circuits.

The following five rules are considered of the utmost importance in the use of electrical equipment:

1. Use materials suitable to the job.
2. Give proper maintenance to your equipment.
3. Use special precautions with the use of electrical equipment in hazardous locations.
4. Live up to the rules and regulations of the National Electric Code, and your state and municipal electric code.
5. Remember, you cannot see, hear or smell electricity in an exposed part or wire, and when you feel it, it is often too late.

New Chip Board Plant Near Portland

The Redwood Fibre Products Co. of Gresham, Oregon, 13 miles east of Portland, is equipping its plant to make chip board, and will be ready to go into production about September 1st.

The concern purchased the Gresham property last January, covering 5½ acres, with 21,000 square feet of floor space in three concrete and hollow tile buildings. These structures have been reconditioned and remodeled to meet the requirements of the new project.

The machine room building is 60 by 200 feet. The finished stock room is 50 by 100 feet and the raw stock room is 40 by 140 feet. The steam plant will be set up adjoining the latter building.

The chip board machine is a 66-inch trim fourdrinier the company recently purchased, and will be installed shortly. Beaters, pumps and other auxiliary equipment has also been bought for the plant. The board machine will be driven by a steam engine, but the beater, shredder, pumps, etc., will be powered by electric motors.

Water supply is being developed by the company in wells on their property.

For the present, chip board will be the chief product of the plant, and it will not be further converted in the plant. Eventually the company will go into the Redwood fibreboard business, producing a hard pressed board from Redwood bark. Much of this will be moulded into shapes for specialty products.

A. D. Bowen, who was associated with J. J. Herb in starting the Pacific Coast Paper Mills at Bellingham, Wash., is president of Redwood Fibre Products Co. W. B. Ledbetter is secretary and treasurer. Jack Johnson, well known Coast paper mill man, who recently resigned from the Hawley Pulp & Paper Co., is plant superintendent, in charge of chip board production.

St. Helens Replaces Digesters

The three new 3½-ton kraft digesters, which were to be installed by the St. Helens Pulp & Paper Co. during July, have been delayed shortly, but are expected to reach the plant some time in August.

The company has completed construction of the new bleach tank, and has also installed a new Zaremba evaporator, similar to those already in operation at the plant.

Trade Talk

of Those Who Sell Paper in the Western States

Paper Trade Conference Formed

The wrapping paper merchants of Southern California have incorporated under state laws as the Paper Trade Conference of Southern California as a non-profit organization.

By-laws have been adopted and the following chosen to act as directors until the annual meeting in January, 1938: Messers. Roy E. Banks, P. G. Cann, T. P. Corcoran, Carl H. Fricke, John H. Kehres, A. J. Nelson and A. J. Wilson.

The board of directors formally organized by electing Mr. Corcoran chairman and Mr. Banks vice-chairman.

Sierra and Pacific Selling Nekoosa Bond

The Sierra Paper Company in Los Angeles and the Pacific Paper Company in San Francisco are now exclusive jobbers in the state of Californian for the Nekoosa Bond, a number one, watermarked bond, manufactured by the Nekoosa-Edwards Paper Company of Port Edwards, Wisconsin, according to Tim O'Keefe of the Sierra Paper Company. The line was taken on May 1st.

Colton In East

Louis A. Colton, San Francisco, vice-president of the Zellerbach Paper Co., in charge of purchases, was on his annual eastern trip in June and July visiting the mills.

New Carpenter Building Ready September 1st

The Carpenter Paper Co. of California and the Carpenter Envelope Co. of California will jointly occupy the new building being built now at 6929 Stanford Avenue, Los Angeles. The new building of reinforced concrete and brick construction will be compelted and ready for occupancy September 1st, according to Mr. K. C. Holland, general manager. The Carpenter Paper Co. will occupy 25,000 square feet of the structure and the Carpenter Envelope Co. will occupy the remaining 50,000 square feet. It will be used for both manufacturing and warehousing purposes. New equipment is being added for the manufacturing part of the plant.

Offices will be sound proof and air conditioned. Excellent facilities are being provided for the workmen with showers, locker room and rest rooms equipped with radios for their entertainment during the lunch period.

The plant will have a capacity in the envelope manufacturing portion of 900,000 envelopes per eight hour shift.

MacDonald Appointed BM&T Sales Manager

An announcement of interest to the paper trade in the Northwest has just been made by Mr. Clinton L. Shorno, manager of the Portland division of Blake, Moffitt & Towne, of the appointment of Mr. T. C. MacDonald to the position of sales manager of the Wrapping and Stationery Department of the Portland division.

Mr. MacDonald has been in charge of the Salem division and leaves this post to take up his new duties in Portland. He has had a wide experience in the paper field and has been connected with the Blake, Moffitt & Towne organization for fourteen years.

In making this announcement, Mr. Shorno states, "The appointment was made in recognition of Mr. MacDonald's qualifications and the need of additional executive ability in keeping with the firm's increasing business."

Mr. B. M. Donaldson has been appointed to take charge of the Salem division.

Elkus Paper In New Building

Elkus Paper Co., San Francisco, moved in June from 1208 Howard Street to a fine renovated building at 301 Golden Gate Avenue, where they have more than tripled their floor space and where they have joint quarters with the new firm of Mangrum, Holbrook & Elkus. This formerly was the Mangrum, Holbrook Co., a 70-year-old San Francisco hotel and restaurant supply house, and recently Richard Elkus and his brother, Eugene S. Elkus, Jr., and their father, Eugene Elkus, Sr., became a part of it.

The Elkus Paper Co. recently added two more salesmen to its staff. The paper company remains a separate corporation, with a separate part of the new establishment.

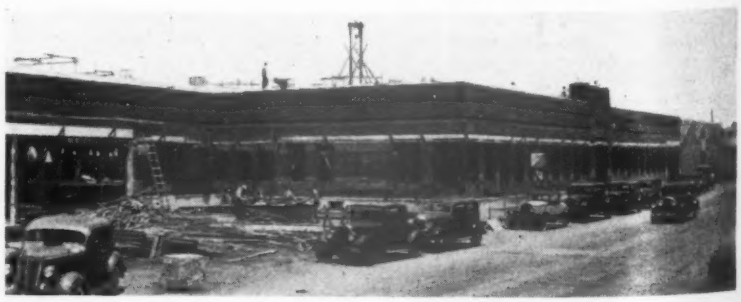
Stockton Branch Celebrates Anniversary

An item of interest comes from Stockton, Calif., of an annual picnic and luncheon which was held in celebration of the second anniversary of the Stockton division of Blake, Moffitt & Towne. With Mr. L. M. Heath, manager of the division, the employees and their friends journeyed to Camanche, Calif., on Sunday, June 6, where a day was spent with many activities, including swimming, baseball games, races, etc.

It wil be recalled that in June, 1935, the Stockton division was added to the chain of Blake, Moffitt & Towne houses on the Pacific Coast, bringing the number of divisions up to fifteen. The building is located at 400 West Market Street and is adequately fitted to serve the paper buyers in Stockton and the adjoining counties of San Joaquin, Stanislaus, Tuolumne, Calaveras and Amador.

Cantine to Visit Coast

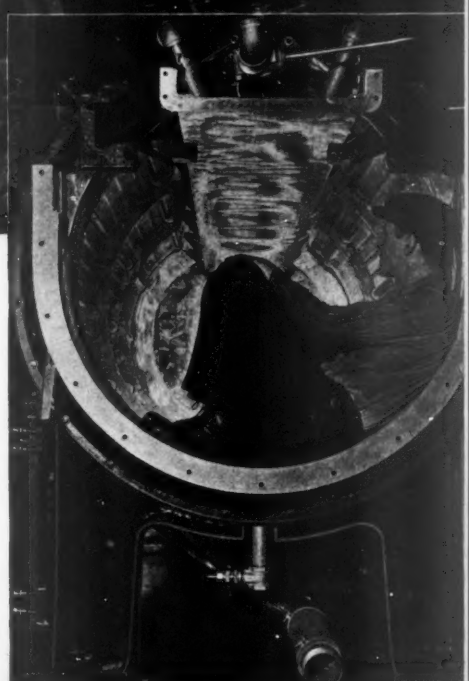
A Pacific Coast visitor late in July will be Holly R. Cantine, president of the Martin Cantine Co. and The Tissue Co. In San Francisco he will visit with E. B. Skinner of the Martin Cantine Co. and D. L. Maxwell of the Tissue firm.



THINK WHAT THIS NEWEST

BIRD SCREEN

CAN DO FOR YOU

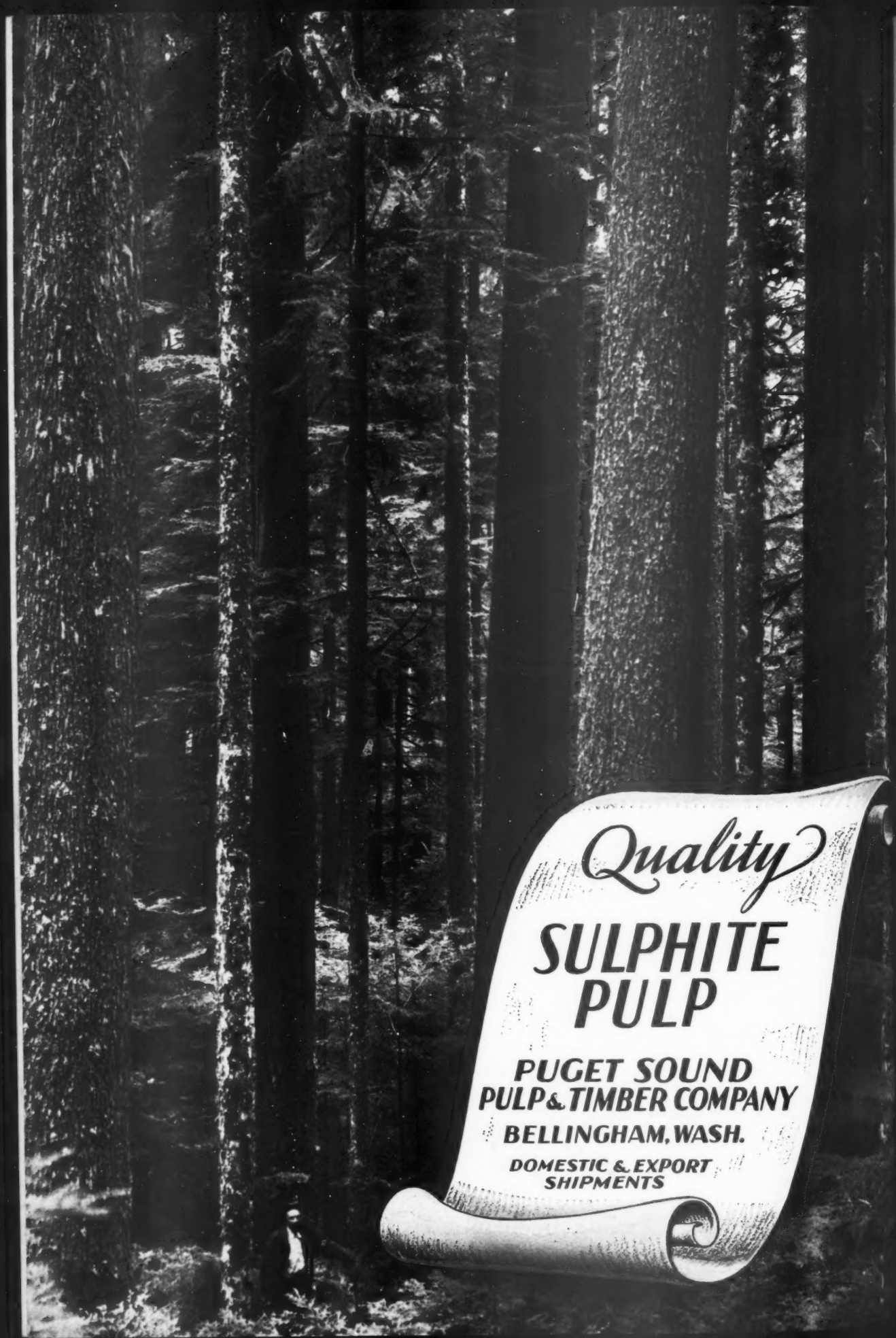


The newest model Bird Screen has the capacity to meet today's production demands. . . . It furnishes the paper machine with a continuous and ample supply of clean, uniform stock free of strings, lumps and slime. . . . It's easier to operate and maintain than ever before and it assures lowest screening cost per ton. . . . May we give you the facts on the one best screen for your job?

BIRD MACHINE COMPANY

SOUTH WALPOLE · MASSACHUSETTS

THE BULK OF NORTH AMERICA'S PAPER PASSES THROUGH BIRD SCREEN


Quality
SULPHITE
PULP
PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM, WASH.
DOMESTIC & EXPORT
SHIPMENTS

Report on the 5 Day Week

by LEW GRONICH*

The five-day week is a subject upon which we can do no theorizing. All of you gentlemen know the advantages and disadvantages of such a policy.

I have checked with the Merchants and Manufacturers Association in Los Angeles on the action of other industries in this regard. I was told that the general trend is in the direction of the 5-day week and that some industries actually were operating on a 40-hour, 5-day week, but in no instance did any industry adopt the plan without the unanimous approval of all factors in that particular industry.

The Los Angeels paper merchants, who handle fine paper exclusively, at a meeting held two weeks ago, expressed their approval of the 40-hour, 5-day week idea, but the dual houses, carrying wrapping papers as well as fine, found themselves unable to conform unless all members of the wrapping paper trade did likewise. Up to the present time, several wrapping paper operators are unwilling to close on Saturday, claiming that their customers need a Saturday service.

With labor in its present state, the 40-hour, 5-day week seems to be a feasible one, but it certainly would be unfair for half the trade to close on Saturday while the other half still continued to do business. Most of those whom I have contacted assume the attitude that it mattered not whether they had a 40-hour, 5-day week, or a 31-hour, 4-day week, or any other arrangement, just so long as everyone in the industry did the same thing.

It may be readily seen from this, while the 5-day week is a subject upon which theorizing cannot be indulged, those of us who have had experience with labor and those of us who have watched the trend of the laborist attitutde, might feel that the 40-hour, 5-day week is a step in the direction of a more harmonious understanding between those who are hired and those who do the hiring.

*General Manager, General Paper Company, Los Angeles. Presented at the 20th Annual Convention of the Pacific States Paper Trade Association, Del Monte, California, May 13-14, 1937.

O'Neil Named Acting Secretary

Edward L. O'Neil has been named acting secretary of the Paper Trade Conference at San Francisco to succeed H. Arthur Dunn, Jr., who remains as counsel. Mr. Dunn has been associated with paper organization activities in San Francisco and the Hastings Law College of the University of California.

Delaney Passes At Stockton

Arthur Delaney, for 35 years with the Zellerbach Paper Co., died recently at Stockton, where he was a printing paper department salesman. Gus Schleicher was transferred from the Zellerbach office in Los Angeles to take Mr. Delaney's place.

Sherman In New Building

The Sherman Paper Products Corporation is now moved into its new offices and plant at 1646 North Spring Street, Los Angeles. This recent move is another step in the continuous growth the firm has enjoyed during the eight and a half years it has been located in that city.

H. Carter Flinn, manager of the company, reports that sales display rooms will be established at the new plant shortly where customers may see samples of the complete Sherman line. Eighty per cent of the products sold by the company now are manufactured locally.

Jefferies Heads Mill Department

Announcement has just been made by Mr. O. W. Mielke, general manager of Blake, Moffitt & Towne, of the appointment of Mr. Donald L. Jeffries to the position of sales manager of the mill department at San Francisco. Jeffries, formerly assistant printing sales manager, will in his new position have charge of specialty papers and volume business placed by large purchasers and converters.

James A. Grumer in charge of sales in the printing paper department will have as his new assistant, H. P. Westler, who has been promoted from the sales staff to this position. With a wide experience in the paper business and a knowledge of the requirements of the trade, Mr. Grumer will look to Westler to develop new sales potentialities and asisst the salesmen in the fild. Prior to joining the Blake, Moffit & Towne organization some thirteen years ago, Westler was connected with the Seaman Paper Company in Minneapolis.

Many in the trade will recognize Donald L. Jeffries as the son of Frank E. Jeffries, head of the Tacoma Paper & Stationery Company, one of the important links in the Blake, Moffitt & Towne chain in the Pacific Northwest. Aside from the advantage of being raised, so-to-speak, in the atmosphere of paper, Jeffries upon his graduation from the University of Oregon entered the employ of a prominent Northwest mill.

After this valuable mill experience, he joined the organization of Neenah Paper Company at Neenah, Wisconsin, manufacturers of high grade bond and ledger papers. Here he spent much time in the testing laboratory, gaining a full knowledge of paper technology. He was also, for a time, connected with the Northern Paper Mills, located at Green Bay, Wisconsin, large manufacturers of tissue and towelling papers.

In order to round out his experience, Jeffries followed this up with an intensive course in printing at the Carnegie Institute of Technology in Pittsburgh. This work included the study of Chemistry of Printing Inks and all other technical matters connected with the Graphic Arts.

He is a director of the Junior Chamber of Commerce and last year was chairman of the Marine Committee. When the San Francisco-Oakland Bay Bridge was opened, he was general chairman of the Celebration Committee for the Junior Chamber of Commorce, having charge of land, sea and air celebration activities.

Swain Returns to Coast

Roy A. Swain, Pacific Coast representative of the L. L. Brown Paper Co. of Adams, Mass., returned recently from a ninety day trip by auto through the East. He was accompanied by Mrs. Swain. The trip included a visit to the plant at Adams.

Jenkins Home Again

Gordon Jenkins, owner of the Gordon Jenkins Paper Co. of Los Angeles, has returned with Mrs. Jenkins from an extended business and vacation trip east. He attended the Shrine convention in Detroit during his trip.

Ross Soldiering

Kenneth Ross of the Silklin Paper Corporation will spend the last two weeks of July at the army post near Monterey. Mr. Ross is a captain in the reserves.

Postal Developments

by VICTOR E. HECHT*

THE information which I present has been furnished through the courtesy of Thomas Quinn Beesley, the executive director of the National Council of Business Mail Users. Mr. Beesley has requested that a copy of this report be mimeographed and distributed to the membership of the Pacific States Paper Trade Association as there are several points that should be carefully studied and its is possible, too, that letters sent to senators and congressmen regarding proposed legislation might be productive of much good.

The National Council of Business Mail Users is now in a position to offer individual service to members of the paper industry who have special problems requiring Washington action.

The National Council has done some splendid work in the interests of the Paper Industry and careful consideration should be given to the proposal that is coming from them in the near future.

Since May, 1936, there have been some extremely important developments in postal affairs, and we urge your most serious attention to this report.

The prices of postage, and the postal regulations, directly affect the volume of paper you can sell. We need only to remind you of what happened when First Class postage was raised to 3 cents. You know what happened when the department rescinded the privilege of sending bulk, unaddressed avertising matter to cities and towns having carrier service. In each instance, the paper trade suffered a loss of volume, because printed advertising matter uses a large percentage of the paper that is sold.

We now direct your attention to the budget situation in Washington, because it is going to have the largest single influence on postal rates and postal regulations, of any topic now before the Congress and the White House. The budget problem can be solved only by the government getting every single dollar of revenue it can raise from any source, and one of the most obvious sources, apart from taxes, is postage. The Post Office Department has aldready announced that it intends to ask the Ways and Means Committee of the House of Representatives to include another year of 3c postage in the so-called "Nuisance Taxes" which otherwise expire automatically next month, on June 30th. Furthermore, under date of April 23, the Postmaster General notified all postmasters to look over their offices and effect all saving they possibly can without actually impairing the efficiency of the offices. On the surface this seems praiseworthy, but in effect it means that any expenditure which can be deferred without injury to the service must be deferred, at least for the time being. In other words, we fear that business mail users, and our industry, are in danger of suffering the evil effects of false economy, the results of which we may soon begin to feel directly.

Since it is not enough merely to point out the false economy, unless we suggest where real savings could be made, you should know that the amount of free mail, in Penalty envelopes, carried last year by the Post Office Department for the other branches of the government, totaled the huge sum of almost $34,000,000.00 This is an increase of almost $10,000,0000.00, or 37½ per cent in two years, the 1934 total being $24,500,000. It is true that the Post Office Department gets a bookkeeping credit for this at the Treasury, but the Congressional appropriation in cash to pay for this, is charged against the post office as a cash debit on the Treasury books. We believe that the government departments and agencies should be required to pay for this free mail in cash, out of their own appropriations. The overhead expense of this mail is a burden on the Post Office, and indirectly it is passed along to the business mail users, who are our customers. The same principle applies to non-postal services recently performed by the department in distributing the soldiers' bonus bonds, and the Treasury savings bonds, because the department took a cash loss of $1,500,000.00 on these two jobs, which is charged to the Post Office Department instead of the Treasury Department where it belongs. The loss on Second Class mail last year totalled $91,000,000.00, and the Bureau of the Budget of Treasury Department estimates that the Post Office will lose $93,000,000.00 on Second Class this year. By comparison, the loss on Third Class Mail is insignificant, and Fourth Class mail, or parcel post, is making a profit. Nevertheless, we warn you that our industry must be prepared to resist possible rate increases in these two classes.

From the point of view of improved postal administration, the outstanding event of the year was the passage by the house of the Ramspeck Bill placing First, Second and Third Class Postamsters under Civil Service, this bill now being before the senate, with the certainty that it will be adopted before Congress adjourns. The great benefit of this bill will be that it will eventually remove the Post Office Department from politics entirely, and in the meanwhile will prevent the use of postmasterships as local political footballs. We point to the Postal Services of Canada and Great Britain as example of what can be accomplished by post offices that are not in politics.

The event of greatest significance for the future, during the year, was the extension of air mail across the Pacific and to all major points in Central and South America, and its eventual extension across the Atlantic this coming winter or next spring. This will open up a vast new field for new kinds of paper suitable for such mail; and while volume will develop slowly, it will eventually become an important item because similar extensions of air mail are being planned for many towns and cities and interior points in the United States not now enjoying direct air service. The department is already experimenting with an apparatus that will permit any airplane to drop off and pick up bags of air mail without stopping, just as railway trains now do. A bill was recently introduced by Senator Copeland that would eventually establish bulk transportation of First Class Mail by air at practically ordinary postage rates, just as the British Post Office now does between London and the Dominions like South Africa and Australia, and the Dependencies like India. The advantages of such bulk transportation of air mail between the Pacific Coast and the East are too obvious for comment. Air mail increased 50 per cent in volume last year, and so far this year has broken all records.

One of the major problems yet to be solved, is the speeding up of mail transportation on advertising matter, and even on First Class matter. Third Class mail is taking too long in delivery from our customers to their customers, and naturally this affects our volume in the long run. It is believed that this slow transportation in large measure is caused by false economy in the administration of the Railway Mail Service, due to the policy of the Railway Mail Service in renting only fixed units of space from the railroads, and holding back mail at the main terminals until there is enough mail to fill the space. The express companies and the air lines and all other common carriers of l. c. l. merchandise operate on a weight basis, and ship the goods out as fast as schedules permit. The Post Office Department should move its mail on a weight basis, and speed it up accordingly. The National Council of Business Mail Users is campaigning for this in Washington, and at the last session of Congress obtained a resolution by the House of Representatives authorizing an investigation of mail transportation. This investigation has been going on quietly during the past few months, and will be continued until recommendations can be made to Congress for needed legislation.

We believe the Third Class weight limit should be increased from its present 8 ounces, which is entirely too low, to some higher bracket like 14 ounces, and commend the efforts of the National Council of Business Mail Users to get the department to authorize this increase. The rate above 8 ounces would be in proportion to the present rates up to 8 ounces. Valuable data on the subject has been furnished the Council by the paper trade, to use in presenting the subject at Washington, and favorable action is expected.

It has been recommended that you write to your two United States Senators and your Congressman, urging their support of the matters contained in our report.

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*Vice-President, Zellerbach Paper Company, San Francisco. Report on Postal Developments from May, 1936, to May, 1937, with recommendations for action by the Pacific States Paper Trade Association. Presented at the 20th Annual Convention of the Pacific States Paper Trade Association, Del Monte, California, May 13-14, 1937.

Above—Dead front control board assembly with 440-volt board at left, 2200-volt control at right.

Below—300-kw. generator, 300-hp. synchronous motor and exciters in compact assembly at right, and D-C. mill drive motor in left foreground.

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Effect of Social Security Legislation on Costs

by E. A. BREYMAN*

WHETHER an automobile or a wife falls in the luxury class would open an argument, and so no one is looking for arguments these days. Those of us who possess both, however—and most of us do—well know the meaning of the phrase, "It is not the original cost, but the upkeep."

This same thought applies to Social Security Taxes. At our meeting last year, I endeavored to digest the Social Security Act and stated that, in round numbers, the Unemployment Insurance and Old Age Pension features of the act imposed an operating expense on the paper merchant of from 8 per cent to 30 per cent of his total present net profit. This is, however, but a start if we are to consider the subject of, The Effect of Social Security Legislation on Costs.

It is necessary to remember that Social Security Taxes are pyramiding taxes. This legislation imposes an excise tax on the employer an income tax on the employee wheresoever he shall work, with but minor exceptions.

I have made some calculations which show the effect of these taxes in the ultimate price to the consumer. I am told that in raw material production, labor is at least 50 per cent of the selling price; in the conversion of raw material into a manufactured product, labor represents at least 25 per cent of the selling price; in the wholesale distribution field, labor is approximately 60 per cent of the expense of distribution, which same percentage applies to the retail field.

By applying the tax rate obtaining during this year, 3 per cent (2 per cent for unemployment insurance and 1 per cent for old age pensions) to the payrolls which exist in these four subdivisions, starting with the original production and ending with the consumer, the pyramiding of these taxes will equal this year approximately 2 per cent of the selling price of the article to the consumer.

This does not take into consideration the taxes paid on the wages of the employee in those industries which are furnishing supplies and machinery in order that their customers may operate.

Most of us have considered that the Social Security Act imposed only the burden of the direct taxation resulting from the application of the progressive rates on the wages paid. However, this act provided, in addition to the amounts raised from these payroll taxes, general appropriations in the following amounts:

To furnish financial assistance to aged needy individuals until old age pensions become effective	$49,750,000
To assist states in public health work	8,000,000
Grants to states for maternal and child welfare	3,800,000
Grants to states for needy children	24,750,000
Grants to states for crippled children	2,850,000
Grants for child welfare services	1,500,000
Grants to states for vocational rehabilitation	841,000
Appropriation for child's bureau	425,000
Grants to states for aid of the blind	3,000,000
Total	74,916,000

These sums must be raised by general federal taxation, which means that they are ultimately to become a further charge to industry either directly or indirectly.

In addition, the agency bureaus, etc., which must be set up by the states and the federal government to administer this act will call for the employment of literally thousands of people and the provision of proper office space and equipment for them, the cost of which will run into many more millions, likewise assessable against industry.

Since this act became effective in August, 1935, it has become necessary for every business to make provision for the maintenance of complete records and the compilation of forms and statistics to comply with the requirements of the act. This burden adds to the operating expense of all industry alike.

And, last but not least, it is necessary to emphasize that the general improvement in business and the general increase in the cost of living has brought about the employment of additional personnel plus an increase in the general compensation of all personnel, whether organized or unorganized. Every $100 added to industry's payroll, whether the addition of personnel or increased wages, adds $3 to the tax burden for 1937, which is progressively increased to $6 in 1949 and ever thereafter.

There is, moreover, a movement under way already, sponsored primarily by trade unions, to add to the amounts paid by the employer the amounts which are now assesed as an income tax against the employee. This would add approximately another 2 per cent of the payroll were this done during 1937 and 4 per cent from 1949 an thereafter. Bills have already been suggested to make the Old Age Pension provisions of the act effective before 1942. It should likewise be understood that there is no guarantee that the rates assessed are actuarily sound and that they will raise sufficient funds to take care of the obligations of the state and federal governments for unemployment payments and old pensions.

The act provides that the federal government shall invest the money raised only in interest bearing obligations of the United States or in obligations guaranteed as to both principal and interest by the United States—such obligations to provide an investment yield of not less than 3 per cent.

Regardless of the fact that such sums are ear-marked, each Congress must appropriate sufficient sums to meet the obligations of the act itself. If the ear-marked funds are insufficient and succeeding Congresses determine that the obligations of the act should be met, additional appropriations in excess of the fund must be made.

No one denies the desirability of meeting the social problems which unemployment and old age engender. There are few who are critical of the objectives of the Social Security Act. The problem which the act imposes on industry is one of simple arithmetic—where is the money coming from? It must come from industry, which means that if industry is to survive, it must come from the customers of industry.

If it comes from the customers of industry, it must become a part of the selling price.

In those industries where it does not become part of the selling price, capital receives a lesser return. Inasmuch as capital flows to those industries where the return is greatest, to assure itself of adequate capital, industry must, therefore, reflect all or part of these taxes in its selling prices or go out of business.

Do those in the paper distributing trade want to go out of business? If not, they better consider the upkeep of the old car as well as the original cost.

*Zellerbach Paper Company, San Francisco, California. Presented at the 20th Annual Convention of the Pacific States Paper Trade Association, Del Monte, California, May 13-14, 1937.

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A comprehensive laboratory report on the characteristics and applications of Syan Blue B, a product of the first new blue pigment in 100 years, has been released by The International Printing Ink Corporation. The results of tests and studies carried on for nearly two years are contained in this report.

The pigment from which Syan Blue B is derived is the new phthalocyanine compound discovered a few years ago by two Swiss chemists. Research in Germany and in England led to the commercial development of the compound, hailed as the first new blue since Ultramarine, which was discovered in 1826. The pigment is now being used in the manufacture of printing inks and industrial finishes for applications in printing, packaging, decorating and other fields.

According to IPI's findings, the properties of Syan Blue B make it, in many ways, superior to existing blues. Tests indicate it to be exceptionally fast to light and heat, to acids, alkalies, and limes. It is insoluble in oil, in spirits, and in nitrocellulose solvents. Characterized by high tinctorial strength and brilliance of shade, the color of Syan Blue B is said to be well adapted to general advertising and industrial uses. Its properties of fastness make it particularly well suited to applications which require a color resistant to light, heat and chemical reagents.

According to the report, comparative tests have been made between the new pigment and other existing blues—Permanent and Fugitive Peacock, Ultramarine, and Iron Blue. These comparisons are divided according to various fields. For example, as a Soap Wrapper ink, Syan Blue B is proof to alkali, soap and light, while it rates high in tinctorial strength, printing qualities, and cleanliness of tone. Ultramarine blue, while fast to alkali, soap and light, is poor in tinctorial strength and in printing qualities.

Some of the classifications covered in these comparative ratings are sign and poster inks, process printing inks, parchment inks, offset and tin printing inks, carton inks, retogravure inks, and lacquers and enamels. The only pigment proof to both acids and alkalies, and faster to light and heat than any of the present blues, Syan Blue B is shown in each case to have superior characteristics.

The results of "fadeometer" light fastness tests are illustrated graphically in the report, which reproduces samples of five blue colors before and after being subjected to light. Syan Blue B is represented as fading only slightly after 330 fadeometer hours (equivalent to nearly a year of sunlight). The next best blue from a standpoint of light fastness is Iron Blue, yet it begins to fade after 83 fadeometer hours, and in 125 hours, it shows very noticeable fading. Fugitive Peacock Blue fades badly in one and one-half fadeometer hours.

The cover of the report is printed in Syan Blue B and several samples of the new color are included in the appendix. Copies may be obtained from IPI, 75 Varick Street, New York City.

Argentine Paper Production

Primary figures just published in the "Industrial Census of 1935" show 22 pulp and paper mills operating in Argentina as of October 31, 1935. These establishments employed 127 salaried workers and 2,643 workmen. Production for the fiscal year 1934-1935 reached a total of 70,368 short tons. The largest item of production in these mills is wrapping paper, which totaled 26,509 short tons. Another large item was paper boards and container boards, which totaled 3,341 short tons. The production of book paper amounted to only 1,375 tons and an imitation linen paper to 176 tons. (Vice Consul Sherburne Dillingham, Buenos Aires).

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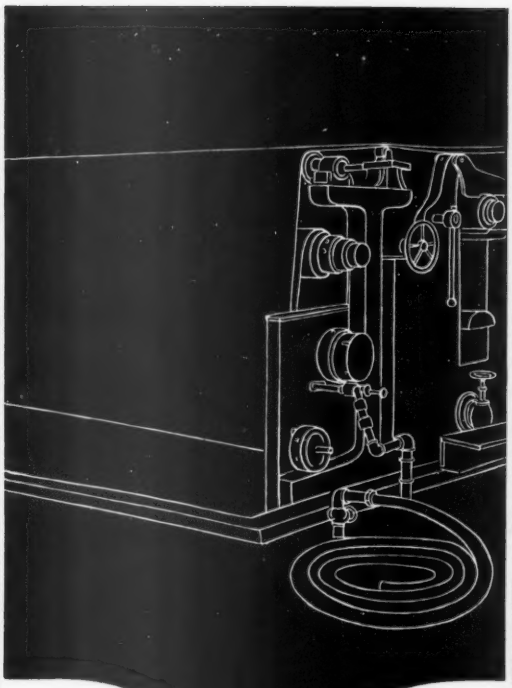

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